State of Ohio Environmental Protection Agency

RE: FINAL PERMIT TO INSTALL **CERTIFIED MAIL**
GEAUGA COUNTY

Street Address:
122 S. Front Street
Lazarus Gov. Center **TELE:** (614) 644-3020 **FAX:** (614) 644-2329
Mailing Address:
Lazarus Gov. Center
P.O. Box 1049

Application No: 02-18557

DATE: 7/20/2004

KraftMaid Cabinetry Inc
Bennett Wetzel
PO Box 1055 15535 South State St
Middlefield, OH 440621055

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, Ohio 43215

Sincerely,

Michael W. Ahern

Michael W. Ahern, Supervisor
Field Operations and Permit Section
Division of Air Pollution Control

CC: USEPA **NEDO**

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

Permit To Install	**Issue Date: 7/20/2004**
Terms and Conditions	**Effective Date: 7/20/2004**

FINAL PERMIT TO INSTALL 02-18557

Application Number:	02-18557
APS Premise Number:	0228000186
Permit Fee:	**$6800**
Name of Facility:	KraftMaid Cabinetry Inc
Person to Contact:	Bennett Wetzel
Address:	PO Box 1055 15535 South State St Middlefield, OH 440621055

Location of proposed air contaminant source(s) [emissions unit(s)]:
16052 Industrial Parkway
Middlefield, **Ohio**

Description of proposed emissions unit(s):
New spray booths.

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

Part I - GENERAL TERMS AND CONDITIONS

A. Permit to Install General Terms and Conditions

1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

2. Reporting Requirements

The permittee shall submit required reports in the following manner:

a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.

b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

3. Records Retention Requirements

Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized

representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

6. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

7. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

8. Termination of Permit to Install

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

9. Construction of New Sources(s)

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio

Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

10. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

11. Applicability

This Permit To Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate Permit To Install for the installation or modification of any other emissions unit(s) are required for any emissions unit for which a Permit To Install is required.

12. Best Available Technology

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

13. Source Operation and Operating Permit Requirements After Completion of Construction

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the emissions unit(s) covered by this permit.

14. Construction Compliance Certification

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

15. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

B. Permit to Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

Pollutant	Tons Per Year
VOC	47.0
HAP	5.5 tons per year of each individual HAP
HAPs	13.0 tons per year of all HAPs combined
NOx	21.38
CO	17.96

Emissions Unit ID: **K001**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K001 - Spray paint recirculation booth 1, of overhead conveyor line 1; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K001

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K001 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other

applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K002**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K002 - Spray paint recirculation booth 2 of overhead conveyor line 1; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation,

was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated

that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the

recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of

VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the

material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K002

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K002 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal

oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential

presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or

4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K003**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K003 - Spray paint recirculation booth 3 of overhead conveyor line 1; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation,

was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received

and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited

to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K003

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K003 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE

(100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K004**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K004 - Spray paint recirculation booth 1 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

      The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV (ug.m^3)	MAGLC = TLV/42 (ug.m^3)	Emission rate (g/s)	Predicted 1-hr max ground level conc. (ug.m^3)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will

still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K004

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K004 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other

applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K005**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K005 - Spray paint recirculation booth 4 of overhead conveyor line 1; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

1.50 lbs VOC/hour from emissions unit K005

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K005 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other

applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K006**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K006 - Spray paint recirculation booth 5 of overhead conveyor line 1; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process

operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a"

- "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited

to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"

will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the

inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios

when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the

following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

   1.50 lbs VOC/hour from emissions unit K006

   Applicable Compliance Method

   This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K006 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

   U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

   47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

   Applicable Compliance Method

   Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

   Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE

(100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K007**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K007 - Spatter booth of overhead conveyor line 1; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 54.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.54 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the

enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal

oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a"

- "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited

to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV (ug.m^3)	MAGLC = TLV/42 (ug.m^3)	Emission rate (g/s)	Predicted 1-hr max ground level conc. (ug.m^3)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a

distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.54 lbs VOC/hour from emissions unit K007

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (9.0 lbs VOC/gal) times the maximum hourly usage rate of K007 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance

demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K008**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K008 - Spindle spray booth; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K008

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K008 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other

applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K009**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K009 - Off-line spatter spray booth; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 54.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.54 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

      The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emissiontest that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.54 lbs VOC/hour from emissions unit K009

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (9.0 lbs VOC/gal) times the maximum hourly usage rate of K009 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE

(100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K010**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K010 - Flat line booth 1 and oven; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 7.5 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.075 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's

"Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV (ug.m^3)	MAGLC = TLV/42 (ug.m^3)	Emission rate (g/s)	Predicted 1-hr max ground level conc. (ug.m^3)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

   a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

   b. changes in the composition of the materials, or use of new materials, that would result in

an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in

operation, including cleanup and mixing operations; and

c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

   b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the

average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.075 lbs VOC/hour from emissions unit K010

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K010 (1 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:

The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the

test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K011 - Off-line spray paint booth 1; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	See Section A.2.g.
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling,	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV (ug.m^3)	MAGLC = TLV/42 (ug.m^3)	Emission rate (g/s)	Predicted 1-hr max ground level conc. (ug.m^3)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will

still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K011

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K011 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other

applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K012**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K012 - Off-line spray paint booth 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials

employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a"

- "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited

to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

   a. changes in the composition of the materials used or the use of new materials, that would

result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

1.50 lbs VOC/hour from emissions unit K012

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K012 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during

the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls,

floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K013**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K013 - Off-line spray paint booth 3 and electric oven; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

      The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K013

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K013 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other

applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K014**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K014 - Off-line spray paint booth 4; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2

1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in

U.S. EPA Method 204:

a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter.

The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer’s recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a

daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained

during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the

PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N

acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

   a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

   b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

   c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

   If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

    a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

    b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

    c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

    a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

    b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

    c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

    The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE,

exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

   b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

   d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

   e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

   f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

   a. the total controlled VOC emissions from all emissions units contained in the PTE;

   b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

   c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

   These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K014

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K014 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE

(100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the

temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K015**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K015 - Off-line spray paint booth 5; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials

employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or

the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N

hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

   a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

   b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

   c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

   If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

   a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

   b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above

the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

   b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

   d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

   e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

   f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

   The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

   a. the total controlled VOC emissions from all emissions units contained in the PTE;

   b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

   c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

   These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

   1.50 lbs VOC/hour from emissions unit K015

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K015 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance

demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K016**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K016 - Flat-line 2 and oven; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 7.5 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.075 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.075 lbs VOC/hour from emissions unit K016

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K016 (1 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the

alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K017**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K017 - Cefla 1--Two spray paint booths with dedicated natural gas ovens controlled with a water curtain; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets) (formerly R005 and R006)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 112.5 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.13 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;

ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and

iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface

area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that

the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the

recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of

VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its

installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the

calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

   b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

   d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

   e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

   f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

   The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

   a. the total controlled VOC emissions from all emissions units contained in the PTE;

   b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

   c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

   These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

   1.13 lbs VOC/hour from emissions unit K017

   Applicable Compliance Method

   This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K017 (15 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

   U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

   47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and

cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating

applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K018 - Cefla 2--Two spray paint booths with dedicated natural gas ovens controlled with water curtain; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets) (formerly R007)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
The requirements of this permit to install supersede those requirements included in Permit to Install 02-8506 issued on December 6, 1995.		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 112.5 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.13 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;

ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and

iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface

area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that

the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the

recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of

VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its

installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the

calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

   b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

   d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

   e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

   f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

   The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

   a. the total controlled VOC emissions from all emissions units contained in the PTE;

   b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

   c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

   These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

   1.13 lbs VOC/hour from emissions unit K018

   Applicable Compliance Method

   This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K018 (15 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

   U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

   47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and

cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:

Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all

emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the

determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request

additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA .

F. Miscellaneous Requirements

None

Emissions Unit ID: **K019**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K019 - Off-line spray paint booth 6; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;

ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and

iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface

area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that

the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the

recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of

VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its

installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the

calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

   b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

   d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

   e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

   f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

   The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

   a. the total controlled VOC emissions from all emissions units contained in the PTE;

   b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

   c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

   These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

   0.45 lbs VOC/hour from emissions unit K019

   Applicable Compliance Method

   This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K019 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

   U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

   47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and

cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating

applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K020**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K020 - Off-line spray paint booth 7; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that theemissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and

99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.028	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.17	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.000017	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used

in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

1.50 lbs VOC/hour from emissions unit K020

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K020 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating

applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

F. Miscellaneous Requirements

None

Emissions Unit ID: **K021**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K021 - Spray paint booth 2 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K021

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K021 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the

compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is

certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K022**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K022 - Spray paint booth 3 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

      The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K022

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K022 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other

applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure thatthe operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K023**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K023 - Spray paint booth 4 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K023

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K023 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the

compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is

certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure thatthe operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K024**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K024 - Spray paint booth 5 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2

1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation,was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of thematerial making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N

naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

   a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

   b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

   c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

   If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

   a. a description of the parameters changed (composition of materials, new pollutants emitted,

change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or

during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

   b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

   d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

   e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

   f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

   The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

   a. the total controlled VOC emissions from all emissions units contained in the PTE;

   b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

   c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

   These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

   1.50 lbs VOC/hour from emissions unit K024

   Applicable Compliance Method

   This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K024 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

   U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot

be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the

Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K025**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K025 - Spray paint booth 6 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

      The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

1.50 lbs VOC/hour from emissions unit K025

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K025 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the

compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is

certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K026**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K026 - Spray paint booth 7 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 45.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.45 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

      The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.45 lbs VOC/hour from emissions unit K026

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K026 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the

compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is

certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K027**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K027 - Spray paint booth 8 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2

1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstratedthat the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of thematerial making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N

Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

   a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

   b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

   c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

   If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the

rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

   b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

   d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

   e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

   f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

   The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

   a. the total controlled VOC emissions from all emissions units contained in the PTE;

   b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

   c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

   These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

   1.50 lbs VOC/hour from emissions unit K027

   Applicable Compliance Method

   This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K027 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

   U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60,

Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet

and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200

feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K028**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K028 - Spray paint booth 9 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

      The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

1.50 lbs VOC/hour from emissions unit K028

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K028 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the

compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K029**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K029 - Spatter paint booth 10 of overhead conveyor line 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 54.0 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 0.54 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

      The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	3.77	N
acetone	1,187,116	28,264	0.0018	0.18	N
MEK	589,775	14,042	0.11	11.18	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000003	N
naphthalene	52,429	1,248	0.00002	0.002	N
cumene	245,787	5,852	0.0000003	0.00003	N
ethylbenzene	434,192	10,338	0.05	5.38	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	9.95	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	24.14	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

0.54 lbs VOC/hour from emissions unit K029

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (9.0 lbs VOC/gal) times the maximum hourly usage rate of K029 (6 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating

applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure thatthe operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K030 - Auxiliary paint booth 1; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

1.50 lbs VOC/hour from emissions unit K030

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K030 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating

applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K031 - Auxiliary paint booth 2; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2

1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in

accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer’s recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

a. the measured diameter of each natural draft opening;

b. the distance measured from each natural draft opening to each VOC emitting point;

c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

f. the total uncontrolled emission rates of each individual HAP from all coatings and

solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstratedthat the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N

MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

   a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

   b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

   c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

   If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts

evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

   a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

   b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

   d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

   e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

   f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

   a. the total controlled VOC emissions from all emissions units contained in the PTE;

   b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

   c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

   These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

   1.50 lbs VOC/hour from emissions unit K031

   Applicable Compliance Method

   This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K031 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

$$E = EF \times R \times 1/H$$

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal

oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during

the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls,

floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure thatthe operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K032**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K032 - Auxiliary paint booth 3; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

1.50 lbs VOC/hour from emissions unit K032

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K032 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating

applications, from which the total shall be to compare with the stack test results for the compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K033 - Auxiliary paint booth 4; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

      The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

1.50 lbs VOC/hour from emissions unit K033

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K033 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the

compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is

certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure thatthe operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None

Emissions Unit ID: **K034**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
K034 - Auxiliary paint booth 5; enclosed by a Permanent Total Enclosure (PTE) which is vented to two thermal oxidizers (for wood cabinets)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-21-07(G)(2)
		40 CFR Part 63 Subpart JJ-National Emissions Standards for Wood Furniture Manufacturing Operations
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures	
	respectively, based on a rolling, 12-month summation. See Section A.2.f.
The PTE and thermal incinerators together shall have a 99.0% overall reduction of volatile organic compound (VOC) emissions, by weight (100% capture efficiency and 99.0% destruction efficiency).	The requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See Section A.2.b.
The uncontrolled VOC emissions of 150 lbs/hour emitted to the PTE from this emissions unit, shall not exceed the controlled emissions of 1.50 lbs/hr.	See Section A.2.g. See Section A.2.g.
Nitrogen Oxide (NOx) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.88 lbs/hr and 21.38 tpy.	
Carbon Monoxide (CO) emissions from the combustion of natural gas in both thermal oxidizers #1 and #2 together shall not exceed 4.10 lbs/hr and 17.96 tpy.	
VOC emissions from all emissions units contained in the PTE shall not exceed 47.0 tons per rolling 12-month period. See Section A.2.f.	
Individual HAPs and total combined HAP emissions from all emissions units contained within the PTE shall not exceed 5.5 tons per year and 13.0 tons per year	

2. Additional Terms and Conditions

2.a The permanent total enclosure (PTE) serving this emissions unit shall be maintained in such a manner as to meet the criteria established for a permanent total enclosure in 40 CFR, Part 51, Appendix M, Reference Method 204, and it shall capture all of the VOC emissions from this emissions unit and all the emission units contained within the PTE (See Section A.2.f).

2.b This facility is not an "affected source" subject to the requirements of 40 CFR 63 Subpart JJ because it is not a "major source" as defined in 40 CFR 63.2, for individual or combined HAPs. The permittee shall not exceed the hazardous air pollutant (HAP) limitations contained in this permit, without also obtaining a permit modification, and as a major source if becoming subject to this subpart.

2.c The permittee shall use two thermal oxidizers during all coating operations, mixing of VOC- containing materials, and cleanup operations. The PTE shall enclose all sources of VOC emissions associated with this emissions unit and the emission units contained within the PTE, including rag wipe operations and the collection of waste and/or recovered VOC-containing materials.

2.d If one of the thermal oxidizers becomes inoperable during otherwise normal operations, a damper may be installed which shall divert all air flow (100%) to the thermal oxidizer in operation. In each such event in which one of the two thermal oxidizers becomes unoperational, the permittee shall ensure that the capacity of the remaining thermal oxidizer is not exceeded, by calculating the VOC usage in process and shall limit operations so as not to exceed its capacity.

2.e The volatile organic compound (VOC) content of the coatings (including stains, toners, glazes, topcoats, wash, spatter, and sealers) and solvents and support materials (including cleanup materials and booth buffer) used by the permittee at this facility shall not exceed the following VOC contents:

Coatings	7.5 lbs VOC/gallon
Solvents & Support Materials	9.0 lbs VOC/gallon
Spatter	9.0 lbs VOC/gallon

2.f Emissions from the PTE, which includes emissions units K001, K002, K003, K004, K005, K006, K007, K008, K008, K009, K010, K011, K012, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, and K034, controlled by thermal oxidizer #1 (at 95,000 acfm) and

oxidizer #2 (at 55,000 acfm), shall not exceed the following limits:

i. 47.0 tons of VOC per rolling 12-month period; and for the first 12 months following the issuance of this permit, VOC emissions shall not exceed the levels in the table below;
ii. 5.5 tons of any individual HAP per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of any single HAP shall not exceed the levels in the table below; and
iii. 13.0 tons of total combined HAPs per rolling 12 month period; and for the first 12 months following the issuance of this permit, emissions of total combined HAPs shall not exceed the levels in the table below.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, VOC and HAP emissions from the two thermal incinerators, together, shall not exceed the emission levels specified in the following table:

Month	VOC (tons)	each individual HAP (lbs.)	total HAPs (lbs.)
1	3.92	916.7	2,166.6
1-2	7.83	1,833.3	4,333.3
1-3	11.75	2,750.0	6,500.0
1-4	15.7	3,666.7	8,666.7
1-5	19.6	4,583.3	10,833.3
1-6	23.5	5,500.0	13,000.0
1-7	27.4	6,416.7	15,166.6
1-8	31.3	7,333.3	17,333.2
1-9	35.25	8,250.0	19,500.0
1-10	39.17	9,166.6	21,666.0
1-11	43.1	10,083.3	23,832.6
1-12	47.0	11,000.0	26,000.0

After the first 12 calendar months of operation following issuance of this permit, compliance shall be based upon a rolling, 12-month summation of the VOC and HAP emissions.

2.g The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the state regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B), by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

B. Operational Restrictions

1. The average combustion temperature within the thermal incinerators, for any 3-hour block of time when any of the emissions unit(s) contained in the PTE is/are in operation (including cleanup operations), shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated this emissions unit to be in compliance.

2 This emissions unit shall be totally enclosed within the PTE, such that all VOC/HAP emissions are captured, contained, and vented to the thermal oxidizers. The permittee shall install continuous pressure monitors and a recorder which measures and records the pressure drop across the permanent total enclosure; units shall be in inches of water or millimeters of mercury and shall be recorded as a three-hour average. The PTE shall meet all of the following criteria, as specified in U.S. EPA Method 204:

   a. any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;

   b. the total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

   c. the direction of air flow through all natural draft openings shall be inward, with an average facial velocity of at least 3,600 m/hr (200 fpm), or alternatively, a pressure differential of 0.013 mm Hg (0.007 in.H2O) across the enclosure;

   d. all access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations; and

e. all VOC/HAP emissions (100%) shall be captured and contained for discharge through the thermal oxidizers.

3. The maximum annual coating usage (including stains, toners, glazes, topcoats, wash, spatter, and sealers) from all the emissions units contained in the PTE, shall not exceed 1,073,334 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month coating usage restriction.

4. The maximum annual usage of solvents and support materials (including cleanup materials and booth buffer) from all the emissions units contained in the PTE, shall not exceed 150,000 gallons per rolling 12-month period. Since material usage is not expected to change, and to ensure enforceability during the first twelve calendar months of operation following the issuance of this permit, the actual material usage from the previous 11 calendar months of operation shall be used to demonstrate compliance with the rolling, 12-month solvent/support material usage restriction.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorders which measure and record the combustion temperatures within the thermal oxidizers when any of the emissions units contained in the PTE are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitors and recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. The permittee shall collect and record the following information each day:

   a. all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer, when any emissions unit contained within the PTE was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit to be in compliance;

   b. a log or record of the downtime for the capture/collection system (PTE, fans), thermal oxidizers, and monitoring equipment, when the associated emissions units were in operation; and

   c. a record of all periods of time during which coatings and/or solvents/support materials were employed, and the VOC emissions were not vented to the thermal oxidizer.

3. Unless the PTE meets the requirements of term "3.c" below, the permittee shall install, maintain, and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure. The monitor installed inside the PTE shall be placed at (near) the natural draft opening that has been determined to have the lowest differential pressure reading. The monitoring and recording devices shall be capable of accurately measuring the differential pressure and as a 3-hour average. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following information shall be recorded and maintained on a daily basis in order to demonstrate compliance with requirements for a PTE:

   a. all three-hour blocks of time when the emissions unit(s) was/were in operation, during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and

   b. a log or record of downtime for the capture (collection) system (e.g. disfunctional fans; open doors, where the 3-hour average minimum pressure differential was not maintained) when the emissions unit was in operation; or

   c. if the facial velocity of air into the enclosure, through each natural draft opening to the PTE, is measured and can be maintained at 500 feet per minute (9,000 m/hr), flow indicator strips may be used in place of a flow meter or differential pressure gauge, and a daily record shall be recorded as to the normal or abnormal movement of the strip(s).

4 The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the PTE and its natural draft openings:

   a. the measured diameter of each natural draft opening;

   b. the distance measured from each natural draft opening to each VOC emitting point;

   c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;

   d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and

   e. the calculation demonstrating that the sum of the surface areas of all of the natural draft

openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.

5. The permittee shall collect and record the following information each day for all emissions units contained in the PTE:

   a. the name and identification number/code of each coating (stain, toner, glazes, topcoats, wash, spatter, and sealers) and solvent and support material (cleanup materials and booth buffer);

   b. the VOC content of each coating and solvent and support material identified in "a" in pounds per gallon or percent by weight;

   c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating and solvent and support material identified in "a", in pounds per gallon or percent by weight;

   d. the number of gallons or weight density of each VOC-containing material applied, as identified in "a", from all the emissions units contained in the PTE, vented to and controlled by the thermal oxidizers;

   e. the total uncontrolled VOC emissions rate from all coatings and solvent/support materials applied in the emissions units contained in the PTE, i.e., (☐"b" x "d") for all materials, in pounds per day;

   f. the total uncontrolled emission rates of each individual HAP from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e., ☐"c" x "d" for all materials, in pounds per day;

   g. the total uncontrolled emission rate of all HAPs collectively from all coatings and solvent/support materials employed in the emissions units contained in the PTE, i.e. ☐ "f" for all HAPs from all materials, in pounds per day;

   h. the calculated, controlled VOC emission rate for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

   The controlled emission rate shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control

efficiency (100% capture and 99% destruction).

i. the calculated, controlled emission rate of each individual HAP for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day; and

The controlled emission rate for each individual HAP shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

j. the calculated, controlled emission rate for all HAPs summed collectively, for all coatings and solvent/support materials employed in the emissions units contained in the PTE vented and controlled by the thermal oxidizers, in pounds per day;

The controlled emission rate for all HAPs shall be calculated using the overall control efficiency for the thermal oxidizer as determined during the most recent emission test that demonstrated that the emissions unit was in compliance. Until compliant stack test results are received and compliance with Method 204 is demonstrated, 99.0% shall be applied as the control efficiency for all organic HAPs.

6. The permittee shall collect and record the following information at the end of each month for all emissions units contained in the PTE, calculated from the sum of the daily records maintained during each month of record:

a. the sum of the daily controlled VOC emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

b. if a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle, and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material;

c. if a solvent recovery credit is to be applied, the VOC credit, calculated by multiplying the gallons or weight of material collected for recovery/disposal by the minimum VOC content of the material or the VOC content of the material making up at least 90% of the recovered material, both from "b";

d. if a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., "a" - "c";

e. the total rolling 12-month controlled VOC emissions from all the materials employed in the emissions units contained in the PTE;

f. the sum of the daily totals of each individual controlled HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

g. the sum of the daily controlled combined HAP emissions from all coatings, solvent and support materials applied in the PTE during the month of record;

h. the total rolling 12-month controlled emissions of each individual HAP from all the materials employed in the emissions units contained in the PTE;

i. the total rolling 12-month controlled emissions of the total combined HAPs from all the materials employed in the emissions units contained in the PTE;

j. the total number of gallons of coating (including stains, toners, glazes, topcoats, wash, spatter, and sealers) employed during the month;

k. the total number of gallons of solvent and support material usage (including cleanup materials and booth buffer) employed during the month;

l. the rolling 12-month gallons of coating employed in the emissions units contained in the PTE; and

m. the rolling 12-month gallons of solvent and support material employed in the emissions units contained in the PTE;

n. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of VOCs, each individual HAP, and the total combined HAPs employed in the emissions units contained in the PTE; and

o. for the first 12 months following the issuance of this permit, the rolling cumulative monthly summation of coating usage and the rolling cumulative monthly summation of the solvents and support materials employed in the emissions units contained in the PTE.

For the first 12 months following the issuance of this permit, the monthly rolling emissions of VOCs and HAPs shall not exceed the limits contained in the table found in Section A.2.f.

7. If solvent is collected for recycle and/or disposal and the VOC content of the material is credited to monthly emission estimates, the permittee shall maintain a log of the weight density or gallons of material shipped off-site and the material's minimum VOC content or the VOC content of the material making up at least 90% of the volume credited to emission estimates. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.

8. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, specifically the exhaust from the thermal oxidizers, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model. The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following table summarizes the results of the modeling from the thermal oxidizers:

Compound	TLV ($ug.m^3$)	MAGLC = TLV/42 ($ug.m^3$)	Emission rate (g/s)	Predicted 1-hr max ground level conc. ($ug.m^3$)	MAGLC exceeded (Y/N)
formaldehyde	271	6	0.00003	0.03	N
methanol	262,086	6,240	0.04	4.34	N
acetone	1,187,116	28,264	0.0018	0.195	N
MEK	589,775	14,042	0.11	11.94	N
Dibutyl Phthalate	5,000	119	0.00000003	.0000034	N
naphthalene	52,429	1,248	0.00002	0.0026	N
cumene	245,787	5,852	0.0000003	0.000037	N
ethylbenzene	434,192	10,338	0.05	5.75	N
MIBK	204,826	4,877	0.02	2.30	N
toluene	188,405	4,486	0.10	10.63	N
hexane	1,762,372	41,961	0.0002	0.00002	N
xylene	434,192	10,338	0.24	25.72	N

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy"will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not

be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH), " than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfied the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

11. If one of the thermal oxidizers becomes inoperable during otherwise normal operations, the calculation of the VOC usage in process during the downtime, a record of the corresponding capacity of the thermal oxidizer in operation; and a record noting the damper was closed to the inoperable unit.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation reports that identify the following information:

   a. all 3-hour blocks of time during which the average combustion temperatures within each thermal oxidizer did not comply with the temperature limitation specified in this permit;

   b. all periods of downtime for the capture (collection) system, thermal oxidizer, and/or monitoring equipment, when any emissions units referenced in Section A.2.f are in operation, including cleanup and mixing operations; and

   c. all periods of time when the stack that bypasses the thermal oxidizers is used while coating, mixing, and or cleanup operations are in process.

   The report shall include the number of hours or 3-hour blocks of time ("a") and the date of each occurrence.

2. The permittee shall submit quarterly deviation reports that identify any period of time during which this emissions unit was in operation without the use of the thermal oxidizer, or the thermal oxidizer was bypassed.

3. The permittee shall submit quarterly deviation reports that identify any month during which the coating and/or the solvent/material support usage for all the emissions units contained in the PTE, exceeded the rolling 12-month usage limits of 1,073,334 gallons and 150,000 gallons respectively.

4. The permittee shall submit quarterly deviation reports that identify any month during which the rolling 12-month VOCs, individual HAPs, or total combined HAP emissions from the entire facility, exceeded the rolling 12-month limits of 47.0 tons, 5.5 tons, and 13.0 tons respectively; or during the first 12 months following the issuance of this permit, exceeded the levels contained in Section A.2.f.

5. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time (date and number of hours) during which the permanent total enclosure was not maintained at or above the minimum pressure differential of 0.013 millimeters of mercury or 0.007 inches of water, as a three-hour average; and/or an identification of any period of time (date and number of hours) when the permanent total enclosure was not functioning properly, the cause(s) for the improper operation, and the corrective actions taken.

6. The permittee shall submit quarterly deviation reports that identify any of the following scenarios when the emissions unit was in operation:

a. any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;

b. any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;

c. any day in which the difference in pressure between the permanent total enclosure and the surrounding area(s) was measured at less than 0.013 mm Hg (0.007 in H2O), or the average facial velocity of the air through any natural draft openings was measured at less than 200 feet per minute (3,600 meters per hour), as a 3-hour average;

d. any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement, unless a negative pressure was demonstrated and maintained;

e. any period of time in which any access door or window was opened during process operations, causing a deviation from the differential pressure requirement, measured as a 3-hour average; and

f. anything less than 100% of the VOC emissions were captured for discharge through the control device.

The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

7. If one of the thermal oxidizers becomes inoperable during otherwise normal operations in any month, and the calculation of the VOC usage, in process during the downtime, exceeded the capacity of the thermal oxidizer in operation, a quarterly report shall be submitted for the exceedance, which shall include the date and number of hours during which the operating thermal oxidizer's capacity was exceeded.

8. The quarterly deviation reports shall be submitted as required by the General Terms and Conditions contained in this permit, by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarter.

9. The permittee shall also submit an annual report for the previous calendar year which specifies the following:

a. the total controlled VOC emissions from all emissions units contained in the PTE;

b. the total controlled individual HAP emissions from all emissions units contained in the PTE; and

c. the total controlled combined emissions for all HAPs from all emissions units contained in the PTE.

These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emission Limitation

1.50 lbs VOC/hour from emissions unit K034

Applicable Compliance Method

This limit was calculated by multiplying the maximum VOC content coating applied in this emissions unit (7.5 lbs VOC/gal) times the maximum hourly usage rate of K034 (20 gallons/hour) and times the control efficiency of the PTE and thermal oxidizers (100% - 99% control). This limit shall be added for all of the emission units running during the stack test conducted in Section E.7, to determine compliance with the sum of the emissions measured at the end of both thermal incinerator stacks.

U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings. If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A (revised as of July 1, 2001), an owner or operator determines that Method 24 cannot be used for a particular coating, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24. Formulation data or U.S. EPA Method 24 shall be used to determine the VOC contents of the cleanup materials.

2. Emission Limitation

47.0 tons VOC per rolling 12 months from the permanent total enclosure, including mixing and cleanup operations, for all the emissions units contained within the PTE

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

Performance testing to determine compliance with the hourly limit shall be conducted within 6 months after the installation is complete on all emissions units covered by this permit using the methods specified in Section E.7.a of these terms and conditions.

3. Emission Limitation

Individual HAP and total combined HAP emissions from all emissions units located at this facility shall not exceed 5.5 tons per year and 13.0 tons per year respectively, based on a rolling, 12-month summation.

Applicable Compliance Method

Compliance shall be based upon the record keeping specified in Sections C.5 and C.6 of these terms and conditions.

4. Emission Limitation:

Nitrogen Oxide (NOx) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.88 lbs/hr and 21.38 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for NOx is 100 lbs/mmcf.

R = Maximum rating (heat input) reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

5. Emission Limitation:
Carbon Monoxide (CO) emissions from the combustion of natural gas from both thermal oxidizers together shall not exceed 4.1 lbs/hr and 17.96 tpy.

Applicable Compliance Method:
The following equation shall be used to determine the hourly emission rate.

E = EF x R x 1/H

where:

E = Emission rate, in lbs/hr

EF = Emission factor (AP-42, Section 1.4) for CO is 84 lbs/mmcf.

R = Maximum rating reported to be 32mmBtu/hr and 16.8 mmBtu/hr for thermal oxidizer #1 and thermal oxidizer #2, respectively.

H = Heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The yearly rate, in tons/year, shall be determined by multiplying the hourly rate (lbs/hr) as calculated above, by the number of hours of operation per year (hrs/yr) and by the factor of 1 ton/2,000 lbs.

6. Emission Limitation

99.0% overall reduction of VOC emissions, by weight (100% capture and 99.0% destruction)

Applicable Compliance Method

Performance testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit, using the methods specified in Section E.7.a of these terms and conditions.

7.a Emission testing requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. Emission testing shall be conducted within 6 months after installation is complete for all emissions units covered by this permit.

ii. The emission testing shall be conducted to demonstrate compliance with the overall destruction efficiency of the thermal oxidizers (99%), the capture efficiency of the PTE (100%), and the hourly mass VOC emissions for all the emissions units in operation during the stack tests and compliance demonstration. If any emissions unit is conducting cleanup operations during testing, 1% of the VOC content of the cleanup solvent shall be added to the permitted controlled emissions limits of the emissions units performing coating applications, from which the total shall be to compare with the stack test results for the

compliance demonstration.

iii. The following test methods shall be employed to demonstrate compliance with the capture efficiency and control efficiency limitations for VOC:

Method 25 of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are greater than 50 ppm; or

Method 25A of 40 CFR, Part 60 Appendix A, if the VOC concentrations as carbon in the outlet are less than 50ppm; and

Method 204 of 40 CFR Part 51 Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

iv. The test shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the Ohio EPA Central or Northeast District Office.

7.b The capture efficiency shall be determined using Methods 204, as specified 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the "Guidelines for Determining Capture Efficiency" dated January 9, 1995. (The Ohio EPA will consider the request for the use of an alternative method, including an evaluation of the applicability, necessity, and validity of the alternative method, and may approve its use, if such approval does not contravene any other applicable requirement.)

The destruction efficiency, defined as the percent reduction of mass emissions between the inlet and outlet of the control system, shall be determined from the stack test results and in accordance with the test methods and procedures specified in Ohio Administrative Code 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. The permittee shall continuously measure and record the temperature within the thermal oxidizer during each test run.

7.c During the compliance demonstration for the permanent total enclosure, monitoring devices shall be operated to measure the average facial velocity of the air flow through each natural draft opening or the pressure differential across the enclosure at each natural draft opening.

If the facial velocity is measured at greater than 500 feet per minute (9,000 m/hr) the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the volumetric flow rate is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meters; or through the use of streamers, smoke tubes, or tracer gases if the inward flow exceeds 500 feet per minute. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases. If any door to the PTE is to be opened during process operations, the door shall be opened and the air flow shall be checked for demonstration of a negative pressure at the opening.

The permittee shall measure and record the following information for the permanent total enclosure and each natural draft opening:

i. the diameter of each natural draft opening;

ii. the distance measured from each natural draft opening to each VOC emitting point in the process;

iii. the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and

iv. the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.

Compliance with the requirements with for a PTE shall be demonstrated once the following determinations are documented:

i. the average facial velocity at each natural draft opening is maintained at a minimum of 200 feet per minute (3,600 m/hr) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);

ii. each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;

iii. the sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;

iv. there is no leakage detected at any of the closed access doors and windows, and it is

certified that they always remain closed during process operations; and

v. all VOC emissions captured by the PTE are entirely vented for discharge through the control device.

7.d Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and the Lake County Health Department. The "Intent to Test" Notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s), and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Northeast District Office of the Ohio EPA shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA

F. Miscellaneous Requirements

None