



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL MODIFICATION  
MIAMI COUNTY**

**CERTIFIED MAIL**

Street Address:

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov.  
Center

**Application No: 08-04137**

**DATE: 9/30/2003**

DAP Inc  
Matthew Leary  
875 N Third St  
Tipp City, OH 453713053

Enclosed Please find a modification to the Ohio EPA Permit To Install referenced above which will modify the terms and conditions.

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, Supervisor  
Field Operations and Permit Section  
Division of Air Pollution Control

CC: USEPA

RAPCA

Alan Lloyd New Source Review



**Permit To Install  
Terms and Conditions**

**Issue Date: 9/30/2003  
Effective Date: 9/30/2003**

FINAL ADMINISTRATIVE MODIFICATION OF PERMIT TO INSTALL 08-04137

Application Number: 08-04137  
APS Premise Number: 0855130356  
Permit Fee: **\$100**  
Name of Facility: DAP Inc  
Person to Contact: Matthew Leary  
Address: 875 N Third St  
Tipp City, OH 453713053

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**875 N Third St  
Tipp City, Ohio**

Description of proposed emissions unit(s):  
**administrative modification to remove P037 and P038; establish alternative emission limits for P024 through P036.**

The above named entity is hereby granted a modification to the permit to install described above pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this modification 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 source(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 included in the application, the above described source(s) of pollutants will be granted the necessary operating permits.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

**Part I - GENERAL TERMS AND CONDITIONS****A. State and Federally Enforceable Permit To Install General Terms and Conditions****1. Monitoring and Related Recordkeeping and Reporting Requirements**

- a. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
  - i. The date, place (as defined in the permit), and time of sampling or measurements.
  - ii. The date(s) analyses were performed.
  - iii. The company or entity that performed the analyses.
  - iv. The analytical techniques or methods used.
  - v. The results of such analyses.
  - vi. The operating conditions existing at the time of sampling or measurement.
- b. 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.
- c. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
  - i. Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
  - ii. Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the appropriate Ohio EPA District Office or local air agency. The written 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. See B.9 below if no deviations occurred during the quarter.

- iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the appropriate Ohio EPA District Office or local air agency every six months, i.e., by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
- iv. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

## 2. 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, i.e., upset, 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. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to 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 emission unit(s) that is (are) served by such control system(s).

## 3. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

## 4. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

## 5. Severability Clause

A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition

declared invalid.

## 6. General Requirements

- a. The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and reissuance, or modification, or for denial of a permit renewal application.
- b. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.
- c. This permit may be modified, reopened, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d. This permit does not convey any property rights of any sort, or any exclusive privilege.
- e. 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 request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

## 7. 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.

## 8. Federal and State Enforceability

Only those terms and conditions designated in this permit as federally enforceable, that are

required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA, the State, and citizens under the Act. All other terms and conditions of this permit shall not be federally enforceable and shall be enforceable under State law only.

## 9. Compliance Requirements

- a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.
- b. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
  - i. At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
  - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
  - iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - iv. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually, or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
  - i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - ii. An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

**10. Permit To Operate Application**

- a. If the permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77, the permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).
- b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. 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 source(s) covered by this permit.

**11. 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.

**12. 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.

**B. State Only Enforceable 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 of state-only enforceable 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 state-only required 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. 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.

**4. 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.

## **5. 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.

## **6. 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.

## **7. 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.

**8. 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.

**9. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)**

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.

**C. 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**

<u>Pollutant</u>	<u>Tons Per Year</u>
OC	56.79

**Part II - FACILITY SPECIFIC TERMS AND CONDITIONS****A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions**

1. Within 120 days after promulgation of 40 CFR 63 Subpart , HHHHH Misc. Organic NESHAP, the permittee shall submit an Initial Notification Report which certifies whether or not the permittee is subject to the promulgated standard. If the permittee is subject to the final standard, the following information shall also be included in the Initial Notification Report:
  - a. the name and mailing address of the permittee;
  - b. the physical location of the source if it is different from the mailing address;
  - c. identification of the relevant MACT standard and the permittee's compliance date;
  - d. a brief description of the nature, design, size, and method of operation of the source, including the operating design capacity, and an identification of each emission point of each hazardous air pollutant;
  - e. a statement of whether or not the permittee is a major source or an area source according to the promulgated MACT.
2. Within 60 days following completion of the required compliance demonstration activity specified in the 40 CFR 63 Subpart , HHHHH, the permittee shall submit a notification of compliance status that contains the following information:
  - a. the methods used to determine compliance;
  - b. the results of any performance tests, opacity or visible emission observations, continuous monitoring systems (CMS) performance evaluations, and/or other monitoring procedures or methods that were conducted;
  - c. the methods that will be used for determining continuous compliance, including a description of monitoring and reporting requirements and test methods;
  - d. the type and quantity of hazardous air pollutants emitted by the source, reported in units and averaging times in according with the test methods specified in 40 CFR 63 Subpart , HHHHH;
  - e. an analysis demonstrating whether the affected source is a major source or an area source;
  - f. a description of the air pollution control equipment or method for each emission point, including each control device or method for each hazardous air pollutant and

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the control efficiency (percent) for each control device or method; and

- g. a statement of whether or not the permittee has complied with the requirements of 40 CFR 63 Subpart , HHHHH.

Requirements were included in the Final Title V Operating Permit issued February 5, 2003 establishing synthetic minor area source status for the facility to exempt the facility from compliance with the control requirements of 40 CFR Part 63, Subpart HHHHH. The Final Title V Operating Permit for the facility contains rolling 12-month monitoring, record keeping, and reporting requirements to document that actual HAP emissions from the facility are less than 9.9 tons per year for any individual HAP and less than 24.9 tons per year for combined HAPs. If actual HAP emissions exceed 9.9 tons per year for any individual HAP and less than 24.9 tons per year for combined HAPs over any 12-month rolling period the permittee shall complete the compliance demonstrations listed in Facility Specific Terms and Conditions A.I.2.a-g..

**B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions**

None

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**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P024 - Work In Progress Tank A (TK A WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)
		See 2.a., combined emission limitations

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

**III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].

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3. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.
4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

**IV. Reporting Requirements**

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.

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Emissions Unit ID: P024

2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-

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Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test

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Emissions Unit ID: P024

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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P024 - Work In Progress Tank A (TK A WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

- 2.a None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P024) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m<sup>3</sup>): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 1,142

MAGLC (ug/m<sup>3</sup>): 4,486.8

Pollutant: Hexane

TLV (ug/m<sup>3</sup>): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3045

MAGLC (ug/m<sup>3</sup>): 4200

Pollutant: Methylene Chloride

TLV (ug/m<sup>3</sup>): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3587

MAGLC (ug/m<sup>3</sup>): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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.)
2. 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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

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 satisfies 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.

#### **IV. Reporting Requirements**

None

#### **V. Testing Requirements**

None

#### **VI. Miscellaneous Requirements**

None

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**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P025 - Work in Progress Tank B (TK B WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)  See 2.a., combined emission limitations

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

**III. Monitoring and/or Recordkeeping Requirements**

Emissions Unit ID: P025

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which

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measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

**IV. Reporting Requirements**

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.

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2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-

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Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated organic compound emissions, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

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## 2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be

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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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P025 - Work in Progress Tank B (TK B WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

**2.a** None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P024) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m<sup>3</sup>): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 1,142

MAGLC (ug/m<sup>3</sup>): 4,486.8

Pollutant: Hexane

TLV (ug/m<sup>3</sup>): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3045

MAGLC (ug/m<sup>3</sup>): 4200

Pollutant: Methylene Chloride

TLV (ug/m<sup>3</sup>): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3587

MAGLC (ug/m<sup>3</sup>): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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

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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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

- 2. 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 satisfies 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.

#### IV. Reporting Requirements

None

#### V. Testing Requirements

None

#### VI. Miscellaneous Requirements

None

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### **Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

#### **A. State and Federally Enforceable Section**

##### **I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P026 - Work in Progress Tank C (TK C WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)  See 2.a., combined emission limitations

##### **2. Additional Terms and Conditions**

- 2.a** Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

#### **II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

#### **III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall collect and record the following information each day for this emissions unit:

- a. the company identification for each batch of adhesives;
- b. the total number of gallons of each batch;
- c. the calculated vapor pressure of the material produced (psia) in each batch;
- d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
- e. the batch temperature (R);
- f. the batch time (hr/batch);
- g. the open area of the tank (square meters);
- h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
- i. the sum of the displacement and evaporative losses (lbs) for all batches;
- j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
- k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature of the exhaust gases from the condenser when the

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emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

**IV. Reporting Requirements**

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.
2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air

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agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.

3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-

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Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test

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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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

Modification Issued: 9/30/2003

**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P026 - Work in Progress Tank C (TK C WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

2.a None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

- 1. The permit to install for this emissions unit (P026) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m<sup>3</sup>): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 1,142

MAGLC (ug/m<sup>3</sup>): 4,486.8

Pollutant: Hexane

TLV (ug/m<sup>3</sup>): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3045

MAGLC (ug/m<sup>3</sup>): 4200

Pollutant: Methylene Chloride

TLV (ug/m<sup>3</sup>): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3587

MAGLC (ug/m<sup>3</sup>): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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

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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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

- 2. 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 satisfies 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.

#### IV. Reporting Requirements

None

#### V. Testing Requirements

None

#### VI. Miscellaneous Requirements

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P027 - Work in Progress Tank D (TK D WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)  See 2.a., combined emission limitations

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

**III. Monitoring and/or Recordkeeping Requirements**

Emissions Unit ID: P027

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which

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measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

**IV. Reporting Requirements**

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.

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Emissions Unit ID: P027

2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1

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and A.III.2 of this permit.

- e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036

Applicable Compliance Method-

Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the

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Emissions Unit ID: P027

emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P027 - Work in Progress Tank D (TK D WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

2.a None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P027) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m3): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1,142

MAGLC (ug/m3): 4,486.8

Pollutant: Hexane

TLV (ug/m3): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3045

MAGLC (ug/m3): 4200

Pollutant: Methylene Chloride

TLV (ug/m3): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3587

MAGLC (ug/m3): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

- 2. 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 satisfies 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.

#### **IV. Reporting Requirements**

None

#### **V. Testing Requirements**

None

#### **VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. State and Federally Enforceable Section****I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P028 - Work in Progress Tank E (TK E WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)
		See 2.a., combined emission limitations

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

**III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which

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measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

**IV. Reporting Requirements**

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.

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2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-

Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an

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"Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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## **B. State Only Enforceable Section**

### **I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P028 - Work in Progress Tank E (TK E WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

### **2. Additional Terms and Conditions**

- 2.a None

## **II. Operational Restrictions**

None

## **III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P028) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m<sup>3</sup>): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 1,142

MAGLC (ug/m<sup>3</sup>): 4,486.8

Pollutant: Hexane

TLV (ug/m<sup>3</sup>): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3045

MAGLC (ug/m<sup>3</sup>): 4200

Pollutant: Methylene Chloride

TLV (ug/m<sup>3</sup>): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3587

MAGLC (ug/m<sup>3</sup>): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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

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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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

- 2. 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 satisfies 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.

#### IV. Reporting Requirements

None

#### V. Testing Requirements

None

#### VI. Miscellaneous Requirements

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. State and Federally Enforceable Section****I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P029 - Work in Progress Tank F (TK F WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)
	OAC rule 3745-21-07(G)(2)	See 2.a., combined emission limitations  The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.

2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

### III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

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H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.
4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

**IV. Reporting Requirements**

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.

- d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.
2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
  3. The permittee shall submit quarterly summaries that include the following:
    - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
    - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

## V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-

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Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.

- d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036

Applicable Compliance Method-

Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.

e. Emission Limitation-

56.79 TPY OC, combined emission limitation for emissions units P024 through P036

Applicable Compliance Method-

Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case

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non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P029 - Work in Progress Tank F (TK F WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

**2.a** None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P029) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m3): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1,142

MAGLC (ug/m3): 4,486.8

Pollutant: Hexane

TLV (ug/m3): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3045

MAGLC (ug/m3): 4200

Pollutant: Methylene Chloride

TLV (ug/m3): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3587

MAGLC (ug/m3): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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,

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- 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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

2. 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 satisfies 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.

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

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### **Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

#### **A. State and Federally Enforceable Section**

##### **I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P030 - Work in Progress Tank G (TK G WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)  See 2.a., combined emission limitations

##### **2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

##### **II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

##### **III. Monitoring and/or Recordkeeping Requirements**

Emissions Unit ID: P030

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which

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measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

**IV. Reporting Requirements**

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.

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2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-

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Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test

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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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P030 - Work in Progress Tank G (TK G WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

**2.a** None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P030) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m3): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1,142

MAGLC (ug/m3): 4,486.8

Pollutant: Hexane

TLV (ug/m3): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3045

MAGLC (ug/m3): 4200

Pollutant: Methylene Chloride

TLV (ug/m3): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3587

MAGLC (ug/m3): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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,

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- 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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

2. 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 satisfies 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.

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P031 - Work in Progress Tank H (TK H WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)  See 2.a., combined emission limitations

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

- 1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
- 2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

**III. Monitoring and/or Recordkeeping Requirements**

- 1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;

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- e. the batch temperature (R);
- f. the batch time (hr/batch);
- g. the open area of the tank (square meters);
- h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
- i. the sum of the displacement and evaporative losses (lbs) for all batches;
- j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
- k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which

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measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

#### IV. Reporting Requirements

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.
2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:

- a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
- b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-

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Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be

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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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P031 - Work in Progress Tank H (TK H WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

2.a None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P031) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m3): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1,142

MAGLC (ug/m3): 4,486.8

Pollutant: Hexane

TLV (ug/m3): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3045

MAGLC (ug/m3): 4200

Pollutant: Methylene Chloride

TLV (ug/m3): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3587

MAGLC (ug/m3): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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,

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- 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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

2. 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 satisfies 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.

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P032 - Work in Progress Tank I (TK I WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)  See 2.a., combined emission limitations

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

**III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;

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- e. the batch temperature (R);
- f. the batch time (hr/batch);
- g. the open area of the tank (square meters);
- h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
- i. the sum of the displacement and evaporative losses (lbs) for all batches;
- j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
- k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which

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measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

#### IV. Reporting Requirements

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.
2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:

- a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
- b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-

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Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be

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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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

**Modification Issued: 9/30/2003**

**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P032 - Work in Progress Tank I (TK I WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

**2.a** None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P032) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m<sup>3</sup>): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 1,142

MAGLC (ug/m<sup>3</sup>): 4,486.8

Pollutant: Hexane

TLV (ug/m<sup>3</sup>): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3045

MAGLC (ug/m<sup>3</sup>): 4200

Pollutant: Methylene Chloride

TLV (ug/m<sup>3</sup>): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3587

MAGLC (ug/m<sup>3</sup>): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.

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- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

2. 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 satisfies 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.

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Facility ID: **0855130356**

Emissions Unit ID: P032

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P033 - Work in Progress Tank J (TK J WIP Tank, Holding Tank for Adhesives), controlled by condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)  See 2.a., combined emission limitations

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

**III. Monitoring and/or Recordkeeping Requirements**

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1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.
4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

#### IV. Reporting Requirements

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.

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2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

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## 2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be

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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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P033 - Work in Progress Tank J (TK J WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

**2.a** None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P033) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m<sup>3</sup>): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 1,142

MAGLC (ug/m<sup>3</sup>): 4,486.8

Pollutant: Hexane

TLV (ug/m<sup>3</sup>): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3045

MAGLC (ug/m<sup>3</sup>): 4200

Pollutant: Methylene Chloride

TLV (ug/m<sup>3</sup>): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3587

MAGLC (ug/m<sup>3</sup>): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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

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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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

- 2. 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 satisfies 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.

#### IV. Reporting Requirements

None

#### V. Testing Requirements

None

#### VI. Miscellaneous Requirements

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. State and Federally Enforceable Section****I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P034 - Work in Progress Tank K (TK K WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)
	OAC rule 3745-21-07 (G)(2)	See 2.a., combined emission limitations  The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.

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2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

### III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

K = Gas-phase mass transfer coefficient (ft/sec) =  $0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.
4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

#### IV. Reporting Requirements

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were

processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.

2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

## V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-

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311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036

Applicable Compliance Method-

Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.

e. Emission Limitation-

56.79 TPY OC, combined emission limitation for emissions units P024 through P036

Applicable Compliance Method-

Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case

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non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P034 - Work in Progress Tank K (TK K WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

2.a None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

- 1. The permit to install for this emissions unit (P034) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m<sup>3</sup>): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 1,142

MAGLC (ug/m<sup>3</sup>): 4,486.8

Pollutant: Hexane

TLV (ug/m<sup>3</sup>): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3045

MAGLC (ug/m<sup>3</sup>): 4200

Pollutant: Methylene Chloride

TLV (ug/m<sup>3</sup>): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3587

MAGLC (ug/m<sup>3</sup>): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

- 2. 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 satisfies 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.

#### **IV. Reporting Requirements**

None

#### **V. Testing Requirements**

None

#### **VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P035 - Work in Progress Tank L (TK L WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)  See 2.a., combined emission limitations

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

**III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

$K = \text{Gas-phase mass transfer coefficient (ft/sec)} = 0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which

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measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

**IV. Reporting Requirements**

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.

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2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-

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Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

**2. Emissions Testing Requirement:**

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air

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agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P035 - Work in Progress Tank L (TK L WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

**2.a** None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P035) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m<sup>3</sup>): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 1,142

MAGLC (ug/m<sup>3</sup>): 4,486.8

Pollutant: Hexane

TLV (ug/m<sup>3</sup>): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3045

MAGLC (ug/m<sup>3</sup>): 4200

Pollutant: Methylene Chloride

TLV (ug/m<sup>3</sup>): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3587

MAGLC (ug/m<sup>3</sup>): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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

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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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

- 2. 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 satisfies 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.

#### IV. Reporting Requirements

None

#### V. Testing Requirements

None

#### VI. Miscellaneous Requirements

None

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**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P036 - Work in Progress Tank M (TK M WIP Tank, Holding Tank for Adhesives), controlled by a condenser	OAC rule 3745-31-05(A)(3)	8.0 lbs organic compounds (OC)/hour 36.0 lbs OC/day, 6.5 TPY OC (for this emissions unit)  See 2.a., combined emission limitations

**2. Additional Terms and Conditions**

- 2.a Combined OC emissions from P024 through P036 (Work in Progress Tanks A through M) shall not exceed 311.2 lbs/day, and 56.79 TPY.

**II. Operational Restrictions**

1. The average temperature of the exhaust gases from the condenser, for any three hour block of time during which a batch was transferred, shall not be greater than 23.0 °F when processing methylene chloride formulations and not greater than 35.6°F when processing other adhesive formulations.
2. Formulations containing methylene chloride shall be processed in only two (2) work in progress tanks (Work in Progress Tanks A through M) at any time.

**III. Monitoring and/or Recordkeeping Requirements**

Emissions Unit ID: P036

1. The permittee shall collect and record the following information each day for this emissions unit:
  - a. the company identification for each batch of adhesives;
  - b. the total number of gallons of each batch;
  - c. the calculated vapor pressure of the material produced (psia) in each batch;
  - d. the calculated molecular weight of the material produced (lb/lb-mole) in each batch;
  - e. the batch temperature (R);
  - f. the batch time (hr/batch);
  - g. the open area of the tank (square meters);
  - h. the determination of the displacement and evaporative losses in accordance with the formulas and assumptions given in the "US EPA Emission Inventory Improvement Program Volume II: Chapter 8, Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities", updated March 2002, for each batch;
  - i. the sum of the displacement and evaporative losses (lbs) for all batches;
  - j. the total calculated controlled OC emissions, in lbs/day (the controlled OC emission rate shall be calculated using the overall control efficiency for the control equipment as determined during the most recent emission test that demonstrated that the emissions unit was in compliance), i.e., (i) multiplied by a factor of (1- the overall control efficiency);
  - k. Documentation of whether or not the formulation components processed contain methylene chloride.

$$\text{Displacement loss (lbs/batch)} = (0.01246 * S * P * MW * Q)/T$$

Where: MW = Vapor Molecular Weight (lb/lb-mole)

S = 1.0 from USEPA AP-42 Chapter 5 for bottom or submerged loading

P = Vapor Pressure of the material loaded at temperature T (psia)

Q = Volume of material loaded (gal/day)

T = Batch Temperature (R)

$$\text{Evaporation loss (lbs/batch)} = MW * K * A * P * 3600 * H / R * T$$

Where: MW = Molecular weight of species (lb/lb-mole)

$K = \text{Gas-phase mass transfer coefficient (ft/sec)} = 0.00438 * U^{0.78} * (18/MW)^{0.33}$

U = 0.1 mile per hour from USEPA example for indoor equipment

A = Open area of Tank (square meters)

P = Vapor Pressure of VOC (psia)

H = Batch Time (hr/batch)

R = Universal gas constant = 10.73 psia\*cubic feet/lb-mole\*R

T = Batch Temperature (R)

2. The permittee shall collect and record for each day the total calculated controlled OC emission rate for emissions unit P024 through P036, combined, in pounds [this is calculated by summing the daily OC emission rates (from section A.III.1) for emissions unit P024 through P036].
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which

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measures and records the temperature of the exhaust gases from the condenser when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately measuring the desired parameters. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

4. The permittee shall collect and record the following information each day:
  - a. The average temperature of the exhaust gases from the condenser during each of the 8 3-hour blocks of time during the day.
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

**IV. Reporting Requirements**

1. In accordance with paragraph A.1.c. of the General Terms and Conditions, the permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. An identification of each day during which the calculated hourly emissions of OC from this emissions unit exceeded 8.0 lbs/hour, and the calculated organic compound emissions from each such day.
  - b. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives exceeded 36.0 lbs/day, and the actual organic compound emissions from each such day.
  - c. An identification of each day during which the total calculated controlled organic compound emissions from the production of the formulation component for the adhesives in work in process tanks identified as Tanks A through M exceeded 311.2 lbs/day and the total calculated controlled organic compound emissions for each such day.
  - d. An identification of all 3-hour blocks of time during which the average temperature of the exhaust gases from the condenser exceeded the temperature limitation specified in section A.II.1 of the terms and conditions for this emissions unit.
  - e. An identification of each day formulation components containing methylene chloride were processed in more than two work in progress tanks (Work in Progress Tanks A through M), at any time.

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Emissions Unit ID: P036

2. The permittee shall submit annual reports to the Director (Ohio EPA District Office or local air agency) for emissions units P024 through P036 (Work in Progress Tanks A through M) which summarize the total calculated controlled annual OC emissions for this emissions unit. These reports shall be submitted by January 31 of each year and shall cover the previous calendar year.
3. The permittee shall submit quarterly summaries that include the following:
  - a. A log of the down time for the capture (collection) system, control device, and monitoring equipment when the emissions unit was in operation.
  - b. An identification of all time periods during which formulation components containing methylene chloride were processed in this emissions unit.

**V. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.1 of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation-  
8.0 lbs/hour OC, for this emissions unit  
  
Applicable Compliance Method-  
The permittee shall demonstrate compliance with the emission limitation specified above based on the results of emissions testing conducted in accordance with the procedures outlined in Section A.V.2. of this permit.
  - b. Emission Limitation-  
36.0 lbs/day OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - c. Emission Limitation-  
6.50 TPY OC, for this emissions unit  
  
Applicable Compliance Method-  
Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 and shall be the summation of the daily calculated organic compound emissions from the production of formulation components in the TK A WIP tank for the calendar year, divided by 2,000 pounds per ton.
  - d. Emission Limitation-  
311.2 lbs/day OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-  
Compliance shall be determined based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit.
  - e. Emission Limitation-  
56.79 TPY OC, combined emission limitation for emissions units P024 through P036  
  
Applicable Compliance Method-

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Compliance shall be based upon the record keeping specified in Section A.III.1 and A.III.2 of this permit and shall be the summation of the daily calculated controlled organic compound emission rate, for the calendar year, from the production of formulation components in the work in progress tanks identified as Tank A through Tank M, divided by 2,000 pounds per ton.

2. Emissions Testing Requirement:

The permittee shall conduct, or have conducted representative emission testing for the 13 WIP tanks identified as 0855130356 P024 through P036 (Tanks A through M) in accordance with the following requirements:

- a. The emission testing shall be conducted to demonstrate compliance with the OC emissions limitation of 8.0 lbs/hr and shall include determinations of the capture efficiency and the condenser removal efficiency.
- b. The capture efficiency shall be determined using the test methods specified in 40 CFR 51, Appendix M, Method 204 through 204F, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency as specified in the the U.S. EPA Guidelines for Determining Capture Efficiency, dated January 9, 1995. Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- c. The emissions testing shall be conducted on one WIP Tank with the worst case non-methylene chloride mastic or contact cement formulation and on one WIP Tank with the worst case methylene chloride mastic or contact cement formulation, to demonstrate compliance for WIP Tanks A through M. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test

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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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

**VI. Miscellaneous Requirements**

None

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**B. State Only Enforceable Section**

**I. 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P036 - Work in Progress Tank M (TK M WIP Tank, Holding Tank for Adhesives), controlled by a condenser		Compliance with Air Toxic Policy

**2. Additional Terms and Conditions**

2.a None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

1. The permit to install for this emissions unit (P036) was evaluated based on the actual materials specified by the permittee in the permit to install application. The emission limitation(s) specified in this permit was (were) established using the Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") and is (are) based on both the materials used and the design parameters of the emissions unit's exhaust system, as specified in the application. The Ohio EPA's "Air Toxic Policy" was applied for each pollutant using the SCREEN 3.0 model and comparing the predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worse case" each pollutant(s):

Pollutant: Toluene

TLV (ug/m<sup>3</sup>): 188,000

Maximum Hourly Emission Rate (lbs/hr): 4.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 1,142

MAGLC (ug/m<sup>3</sup>): 4,486.8

Pollutant: Hexane

TLV (ug/m<sup>3</sup>): 1,762,370

Maximum Hourly Emission Rate (lbs/hr): 12.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3045

MAGLC (ug/m<sup>3</sup>): 4200

Pollutant: Methylene Chloride

TLV (ug/m<sup>3</sup>): 173,680

Maximum Hourly Emission Rate (lbs/hr): 12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 3587

MAGLC (ug/m<sup>3</sup>): 4135

Physical changes to or changes in the method of operation of the emissions unit that 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 (typically for coatings or cleanup materials), 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

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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(VV)(1)(a)(ii), and a modification of the existing permit to install will be not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

- 2. 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 satisfies 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.

#### IV. Reporting Requirements

None

#### V. Testing Requirements

None

#### VI. Miscellaneous Requirements

None