

Facility ID: 0829060557 Issuance type: Final State Permit To Operate

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In addition to the terms and conditions, hyperlinks have been inserted into the document so you may more readily access the section of the document you wish to review.

Finally, the term language under "Part II" and before "A. Applicable Emissions Limitations..." has been added to aid in document conversion, and was not part of the original issued permit.

\*\*\*THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION\*\*\*

Facility ID: 0829060557 Emissions Unit ID: K003 Issuance type: Final State Permit To Operate

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**Part II - Special Terms and Conditions**

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
K003 - adhesive paper coating process with two roll coaters with dip tanks, a flexographic printer, and drying oven, with a permanent total enclosure and regenerative thermal oxidizer	OAC rule 3745-31-05(A)(3) PTI 08-04850	The volatile organic compound (VOC) emissions from this emissions unit shall not exceed 0.95 pound per hour (lb/hr) and 4.15 tons per year (TPY).  The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(C), 3745-21-09(F), 3745-21-09(B)(6) and 3745-21-09(Y).  See Sections A.2.a. through e. below.
	OAC rule 3745-31-05(C) (Synthetic Minor to avoid Title V)	The emissions of hazardous air pollutants (HAP) shall not exceed 9.9 TPY for a single HAP and 24.9 TPY for any combination of HAPs, based on a rolling 12-month summation.
	OAC rule 3745-21-09(F)	In lieu of complying with the VOC content restriction specified by this rule, the permittee will employ a control system. See section A.2.b. below.
	OAC rule 3745-21-09(B)(6)	The VOC capture and control efficiency requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC 3745-21-09(Y)	The VOC content requirements specified by this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3). See section A.2.e below.

**2. Additional Terms and Conditions**

- (a) The 0.95 pound of VOC per hour limitation was established for PTI purposes to reflect the potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with this limitation.  
The VOC emissions from this emissions unit shall be controlled through the application of a permanent total enclosure (PTE) to capture 100% of the emissions, and a regenerative thermal oxidizer system operating at a minimum of 95% destruction efficiency to achieve a minimum 95% overall (capture times destruction) VOC control efficiency (The most recent emissions testing that demonstrated compliance was conducted on January 11, 2007.).  
The emissions of Hazardous Air Pollutants (HAPs), as identified in Section 112(b) of Title III of the Clean Air Act, from the facility shall not exceed 9.9 TPY for a single HAP and 24.9 TPY for any combination of HAPs, based on a rolling 12-month summation.  
The permittee has the option to perform an additional demonstration to show that the PTE can not be compromised, under normal plant conditions, when the emissions unit is in operation (i.e., the air flow through the PTE to the control device was always maintained under negative pressure even when all additional egress points (non-natural draft openings) which could affect the PTE were opened) in lieu of installing, maintaining and operating monitoring device(s) and a recorder which simultaneously and continuously measures and records the average facial velocity or pressure differential across the PTE.

If the permittee elects not to perform the additional demonstration or the additional demonstration

indicates that the PTE can be compromised, the permittee will be required to comply with the average facial velocity or differential pressure monitoring, record keeping, and reporting and testing requirements specified below (see Sections B.1, B.2.c, B.3, C.2, and D.1.c), to ensure the integrity of the PTE.

The permittee operates a flexographic printer at the head of the paper coating line operation which is not part of the PTE. It is subject to OAC rule 3745-21-09 (Y) and the best available technology provisions of OAC rule 3745-31-05 (A)(3). The inks employed in this printer have a VOC content of 0.002 lb/lb ink, or 0.2 % by weight. The projected maximum annual VOC emissions associated with the flexographic printing have been determined to be 166 lbs per year (0.083 TPY). This satisfies the BAT requirement. Due to the trivial nature of this printing VOC record keeping and reporting requirements have been determined to not be necessary.

#### B. Operational Restrictions

1. A permanent total enclosure shall be constructed to enclose the application stations, coating reservoirs, and all areas from the application station to the oven. If the oven is operated under negative pressure, it does not need to be enclosed as long as there is no leakage between the coating application and the oven. Air flow monitor(s) or differential pressure gauge(s) shall be installed to continuously measure and record the average facial velocity or pressure differential across the enclosure in accordance with 40 CFR Part 51, Appendix M, Method 204. The monitoring and recording devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.
2. The permanent total enclosure shall be maintained under negative pressure whenever the emissions unit is in operation, and shall be designed, installed, maintained, and operated in accordance with 40 CFR Part 51, Appendix M, Method 204, whenever the emissions unit is in operation. The permanent total enclosure shall meet all of the following criteria :
  - a. Any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point;
  - b. The total area of all natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;
  - c. The direction of air flow through all natural draft openings shall be into the enclosure, with an average facial velocity through all natural draft openings being no less than 3,600 m/hr (200 fpm) corresponding to a pressure drop of 0.013 mm Hg (0.007 in.H<sub>2</sub>O);
  - d. All access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in (b) and are not included in the calculation in paragraph (c), shall be completely closed to any air movement during process operations; and
  - e. All VOC emissions shall be captured and contained for discharge through the control device.

By satisfying the above criteria for a permanent total enclosure, the VOC capture efficiency shall be assumed to be 100%.
3. The permanent total enclosure shall be maintained under negative pressure, at a minimum pressure differential that is not less than 0.013 mm Hg (0.007 inch of water), as a 3-hour average, whenever the emissions unit is in operation.
4. The average combustion temperature within the thermal oxidizer, for any 3-hour block of time when the emissions unit is in operation, shall be not less than 1500 degrees Fahrenheit, or not more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance (The most recent emissions testing that demonstrated compliance was conducted on January 11, 2007 with an average combustion chamber temperature of 1550 degrees Fahrenheit.). This value is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the value based upon information obtained during future OC emission tests that demonstrate compliance with the allowable OC emission rate for this emissions unit. In addition, approved revisions to the value will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.
5. The thermal oxidizer shall be operated and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

#### C. Monitoring and/or Record Keeping Requirements

1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the thermal incinerator when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.
 

The permittee shall collect and record the following information each day for the coating line and control equipment:

  - a. A log of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit; and
  - b. All 3-hour blocks of time during which the average combustion temperature within the thermal incinerator, when the emissions unit is in operation, was less than 1500 degrees Fahrenheit, or more than 50 degrees Fahrenheit below the average temperature maintained during the most recent emissions test that demonstrated the emissions unit to be in compliance.
2. The permittee shall record and maintain the following information on a daily basis:

- a. The average facial velocity of the air flow through or the pressure differential across the enclosure; and
  - b. All 3-hour blocks of time during which the permanent total enclosure was not maintained at or above the average facial velocity of 3,600 meters per hour (200 feet per minute) or the minimum pressure differential of 0.007 inch of water, as a 3-hour average.
3. The permittee shall measure, document/calculate, and maintain a permanent record of the following information for the permanent total enclosure, which may be the same record documented during the compliance test(s):
  - a. The measured surface area of each natural draft opening;
  - b. The distance measured from each natural draft opening to each VOC emitting point;
  - c. The total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor, and ceiling;
  - d. The calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and
  - e. The calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling.
4. The permittee shall collect and record the following information each month for this emission unit for the purpose of determining annual VOC emissions:
  - a. The name and company identification of each coating material employed;
  - b. The number of gallons of each coating material employed;
  - c. The VOC content of each coating material employed, in pounds per gallon;
  - d. The name and company identification of each cleanup material employed;
  - e. The number of gallons of each cleanup material employed;
  - f. The VOC content of each cleanup material employed, in pounds per gallon;
  - g. The total uncontrolled VOC usage rate (VOC input rate) for all coatings and cleanup employed [i.e., the summation of (b x c) + (e x f) for all materials], in tons; and
  - h. The total calculated controlled VOC emission rate for all coatings and cleanup materials, in tons [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., (g) multiplied by a factor of (1 - the overall control efficiency)].
5. The permittee shall collect and record the following information each month for the entire facility for the purpose of determining the HAP\* emissions:
  - a. The name and company identification of each coating material employed;
  - b. The individual HAP content for each HAP of each coating material employed, in pounds of individual HAP per gallon, as applied;
  - c. The total combined HAP content of each coating material employed, in pounds of combined HAP per gallon [i.e., the sum of individual HAP contents from (b)], as applied;
  - d. The number of gallons of each coating material employed;
  - e. The name and company identification of each cleanup material employed;
  - f. The individual HAP content for each HAP of each cleanup material employed, in pounds of individual HAP per gallon, as applied;
  - g. The total combined HAP content of each cleanup material employed, in pounds of combined HAP per gallon [i.e., the sum of individual HAP contents from (f)], as applied;
  - h. The number of gallons of each cleanup material employed;
  - i. The after control total individual HAP emissions for each HAP from all coating and cleanup materials employed [i.e., the summation of (b x d) + (f x h), multiplied by (1 - the overall control efficiency)], in tons;
  - j. The after control total combined HAP emissions from all coating and cleanup materials employed [i.e., the summation of (c x d) + (g x h), multiplied by (1 - the overall control efficiency)], in tons;
  - k. The rolling 12-month summation of the total individual HAP emissions for each HAP from all coating and cleanup materials [i.e., the rolling 12-month summation of (i)], in tons per year; and
  - l. The rolling 12-month summation of the total combined HAP emissions from all coating and cleanup materials [i.e., the rolling 12-month summation of (j)], in tons per year.  
The after control HAP emission rates 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.

\*A listing of the Hazardous Air Pollutants can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Ohio EPA field office or local air agency.

Material Safety Data Sheets typically include a listing of the solvents contained in the coating or cleanup materials. This information does not have to be kept on an emission unit-by-emission unit basis.

6. The permit to install for this emissions unit K003 was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied to this emissions unit for each toxic pollutant, using data from the permit to install application, and modeling was performed for the toxic pollutant(s) emitted at over a ton per year using the SCREEN 3.0 model or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the use of the SCREEN 3.0 (or other approved) model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as required in Engineering Guide #70. The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: formaldehyde  
 TLV (mg/m3): 274.0  
 Maximum Hourly Emission Rate (lbs/hr): 0.32  
 Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1.77  
 MAGLC (ug/m3): 6.52

Pollutant: phenol  
 TLV (mg/m3): 40,753  
 Maximum Hourly Emission Rate (lbs/hr): 0.63  
 Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 348.5  
 MAGLC (ug/m3): 970.3

The above described evaluation determined that the maximum ground level concentration for the new or modified source was less than 80% of the MAGLC. Per ORC 3704.03(F)(4)(b), the owner or operator shall submit an annual report that describes any changes to the emissions unit that affect the air toxic modeling. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled, as documented in the most current version of the American Conference of Governmental Industrial Hygienists' (ACGIH's) handbook entitled "TLVs and BEIs" ("Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices");
- 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.).

**D. Reporting Requirements**

1. The permittee shall submit quarterly summary reports, in accordance with the General Terms and Conditions of this permit, that identify any of the following records when the emissions unit was in operation:
  - a. Any period of time in which a natural draft opening to the enclosure was located at a distance of less than four equivalent opening diameters, or less than 4 times the diameter of the opening, from any VOC emitting point;
  - b. Any period of time in which the total area of all natural draft openings exceeded 5 percent of the surface area of the enclosure's four walls, floor, and ceiling;
  - c. Any period of time in which the average facial velocity of the air flow into the enclosure was less than 3,600 meters per hour (200 feet per minute) or identify all 3-hour blocks of time during which the enclosure was not maintained at the minimum pressure differential of 0.013 mm Hg (0.007 inch of water), as a 3-hour average;
  - d. Any period of time in which an access door or window to the enclosure, that does not meet the requirements of a natural draft opening and whose surface area was not included in the 5 percent surface area determination, was not completely closed to air movement;
  - e. Any period of time in which any access doors or window was opened during process operations;
  - f. Any period of times in which less than 100% of the VOC emissions were captured for discharge through the control device or the control device was bypassed;
  - g. A summary which includes a log of the downtime for the capture (collection) system, control device, and monitoring equipment;
  - h. Identification of all 3-hour blocks of time during which the average combustion temperature within the thermal incinerator does not comply with the temperature limitation specified in this permit; and
  - i. Identification of any exceedances of the HAPs emission limits.  
 The report shall include the date and number of hours that the emissions unit was operating under each non-compliant scenario.

These quarterly deviation reports shall be submitted by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarter.

2. The permittee shall submit annual reports which specify the total tons per year of volatile organic compound emissions from this emissions unit, the individual HAP emissions from the facility, and the combined HAPs emissions from the facility. These reports shall be submitted by April 15 of each year and shall cover for the previous calendar year.
3. The permittee shall submit annual reports that describe any changes to this emissions unit which affect the air toxic modeling. If no changes were made during the year, then a report shall be submitted stating that no

changes were made. This report is due by January 31 of each year and shall cover the previous calendar year.

**E. Testing Requirements**

1. Compliance with the emission limitations in Section A.1 of these terms and conditions shall be determined in accordance with the following methods:  
Emission Limitation-  
The volatile organic compound emissions from this emissions unit shall not exceed 0.95 pound per hour (lb/hr).  
  
Applicable Compliance Method-  
Compliance shall be determined by multiplying the maximum coating usage rate of 631.5 lbs/hour (i.e., resin before thinning and fillers) multiplied by the worst case coating VOC content of 3% by weight, multiplied by the overall control efficiency of (1-0.95).  
Emission Limitation-  
The volatile organic compound emissions from this emissions unit shall not exceed 4.15 tons per year.  
  
Applicable Compliance Method-  
Compliance shall be determined by the record keeping as specified in Section C.4 of this permit.  
Emission Limitation-  
The emissions of hazardous air pollutants (HAP) shall not exceed 9.9 TPY for a single HAP and 24.9 TPY for any combination of HAPs, based on a rolling 12-month summation.  
  
Applicable Compliance Method-  
Compliance shall be determined by the record keeping as specified in Section C.5 of this permit.
2. Formulation data shall be used to determine the HAP contents of the coating and cleanup materials.
3. Within twelve months prior to the expiration of this permit the permittee shall conduct or have conducted compliance demonstration testing on this emissions unit in accordance with the following requirements:
  - a. Emissions testing shall be conducted to demonstrate compliance with the allowable mass emission rate and overall control efficiency of 95% for organic compounds. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): Method 18 of 40 CFR Part 60, Appendix A and Method 25 or 25A of 40 CFR Part 60, Appendix A, as appropriate, before and after the regenerative thermal oxidizer, to demonstrate compliance with the destruction efficiency for volatile organic compounds. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
  - b. A compliance demonstration for the permanent total enclosure shall be conducted to demonstrate compliance with the capture efficiency requirement. The following test method(s) shall be employed to demonstrate compliance: Method 204 of 40 CFR Part 60, Appendix A to demonstrate the permanent total enclosure can achieve 100% capture efficiency.
  - c. If formulation data is not available and/or if required by the regulating agency, Method 24 or 24A of 40 CFR Part 60, Appendix A shall be conducted for the organic content of the solvent materials applied. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
4. During the compliance demonstration for the permanent total enclosure, monitoring devices shall be installed to measure the average facial velocity of the air flow through, or the pressure differential across, the natural draft openings in accordance with 40 CFR Part 51, Appendix M, Method 204. The continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration by checking the direction of air flow through the use of streamers, smoke tubes, or tracer gases at each natural draft opening. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeter using smoke tubes or tracer gases.  
  
The permittee shall also measure and record the following information for the permanent total enclosure and each natural draft opening during the compliance demonstration:
  - a. The measured surface area of each natural draft opening;
  - b. The distance measured from each natural draft opening to each VOC emitting point in the process;
  - c. The distance measured from each exhaust duct or hood in the enclosure to each natural draft opening; and
  - d. The total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor, and ceiling.
5. In accordance with 40 CFR Part 51, Appendix M, Method 204, compliance with the requirements for a permanent total enclosure shall be demonstrated if the following determinations are documented during testing:
  - a. The average facial velocity of the air flow into the enclosure is maintained at a minimum of 3,600 m/hr (200 feet per minute) or at a minimum pressure differential of 0.013 mm Hg (0.007 in. of water);
  - b. Each natural draft opening is at a distance of at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point in the process;
  - c. The sum of the surface areas of all of the natural draft openings in the total enclosure are not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor, and ceiling; calculated by dividing the total area of all natural draft openings by the total inside surface area of the enclosure;
  - d. There is no leakage detected at any of the closed access doors and windows, and it is certified that they always remain closed during process operations; and
  - e. All VOC emissions captured by the permanent total enclosure are entirely vented for discharge through the control device.
6. The emissions and compliance demonstration testing tests 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 60 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 tests, 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 tests 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.

**F. Miscellaneous Requirements**

1. None