

Facility ID: 0634000058 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: 0634000058 Emissions Unit ID: K004 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>
Mitsubishi L750XL (45000 lph) Heatset Web Offset Lithographic printing Press with a 11.8 MMBtu drying oven vented to a 4.3 MMBtu Regenerative Thermal Oxidizer (RTO).	OAC rule 3745-31-05(A)(3) (PTI 06-08125)	Particulate emissions (PE) shall not exceed 0.12 lb/hr and 0.53 TPY.  Visible particulate emissions from the RTO exhaust stack shall not exceed 0 % opacity , as a six minute average.  Emissions of nitrogen oxides (NOx) shall not exceed 1.61 lbs/hour, 7.05 TPY.  Emissions of carbon monoxide (CO) shall not exceed 1.35 lbs/hour, 5.92 TPY.  Emissions of organic compounds (OC) shall not exceed 2.2 lbs/hour and 9.67 TPY.  The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A)(1), 3745-21-07(G)(2), 3745-31-05(C).  See Section A.2.a. and A.2.b. below.
	OAC rule 3745-17-11(B)	The uncontrolled mass rate of particulate emissions (PE) from this emissions unit is less than 10 pounds/hour. Therefore, pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. In addition, Table I of OAC rule 3745-17-11 does not apply since the facility is located in Harrison County, which is identified as a P-3 county.
	OAC rule 3745-17-07(A)	This emissions unit is not subject to the visible PE limitations specified in OAC rule 3745-17-07(A) pursuant to OAC rule 3745-17-07(A)(3)(h) because OAC rule 3745-17-11 is not applicable.
	OAC rule 3745-21-07(G)(2)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-21-08 (B)	See Section A.2.c below.

**2. Additional Terms and Conditions**

- (a) The OC emission limitation of 2.2 lbs/hour for emissions unit K004 is based on the following information:
  - i. The percentage of the ink solvent retained on the web after the dryer is 20 percent\*;
  - ii. The percentage of the fountain solution solvent available for capture in the dryer is 70 percent\*;

- iii. The percentage of the auto blanket wash (clean up) solvent available for capture in the dryer is 40 percent\*; and,
- iv. The percentage of the hand blanket wash (clean up) solvent retained on the cloths is 50 percent\*\*.

\* This is based on the draft Control Techniques Guideline (Control of Volatile Organic Compound Emissions from Offset Lithographic Printing, dated September 1993) and the Alternative Control Techniques document, dated November 8, 1993.

\*\* This is based on information supplied by the permittee.  
The permittee shall employ best available technology (BAT) on this emissions unit. BAT has been determined to be the use of a control system for OC emissions, meeting the following requirements:

- i. The control system shall consist of a collection system for the dryer. The collection system shall achieve a capture efficiency of 100 percent of the press dryer exhaust; and,
- ii. The control system shall be equipped with a regenerative thermal oxidizer with a destruction efficiency of at least 95 percent.

The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

**B. Operational Restrictions**

- 1. The average temperature within the regenerative thermal oxidizer, for any 3-hour block of time when the emissions unit is in operation, shall not be less than 1,450 degrees Fahrenheit. A lower average temperature requirement may be established if compliance with the minimum destruction efficiency in A.2.b is demonstrated during emissions testing.

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

- 1. The permittee shall maintain monthly records which list the following information for each graphic arts material (ink, fountain solution, cleanup material, and blanket wash) employed in emissions unit K004:  
The name and identification number of each graphic arts material employed;  
Documentation on whether or not each material employed is a photochemically reactive material;  
The OC content of each graphic arts material, in lbs/gallon or pounds/pound for inks, as received;  
The quantity of each graphic arts material employed, in gallons or lbs of each material per month;  
The OC emissions for each graphic arts material employed, in tons/month, calculated as follows:

$$En = [Un \times Vn \times (1 - Rn/100) \times \{1 - (Cn/100) \times (K/100)\}]$$

where:

En= OC emissions from an individual material (pounds of OC emitted/month);  
Un= total usage of the individual material - typically ink, fountain solution, and cleaning solvents (lbs or gallons of material/month);  
Vn= average OC content of material as determined by Method 24 (lb OC/lb or gallon of material);  
Rn= percent of OC retained on the web or on cloths:

Rn = 20 for inks  
Rn = 0 for fountain solutions  
Rn = 0 for auto blanket wash (cleanup) solvent  
Rn = 50 for hand blanket wash (cleanup) solvent

Cn= capture efficiency for individual material emitted:

Cn = 100 for inks  
Cn = 70 for fountain solutions  
Cn = 40 for auto blanket wash (cleanup) solvent  
Cn = 0 for hand blanket wash (cleanup) solvent; and

K = destruction efficiency as determined during the performance test as specified in condition E.2.  
The total OC emission rate of all graphic arts materials employed, in tons/month, calculated as follows:

$$EM = E1 + E2 + E3 + \dots + En$$

where:

EM = Monthly OC emissions, in lbs/month; and,  
E1 through En = OC emissions from each individual graphic arts material (condition C.1.e).  
The number of hours this emissions unit was in operation, when graphic arts materials were being applied or employed (hours/month);  
The average hourly OC emission rate, i.e., "f" divided by "g", above;

- 2. The permittee shall operate and maintain continuous temperature monitor(s)\* and a temperature recorder which measures and records the average temperature within the regenerative thermal oxidizer 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(s) and recorder shall be installed,

calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

\*If the temperature monitoring system consists of several temperature monitors from which an average temperature is obtained.

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

All 3-hour blocks of time during which the average temperature within the regenerative thermal oxidizer, when the emissions unit was in operation, was less than the temperature limitation specified in condition B.1 of this permit; and,

A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the emissions unit was in operation.

3. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
  - the color of the emissions;
  - the total duration of any visible emission incident; and
  - any corrective actions taken to eliminate the visible emissions.

**D. Reporting Requirements**

1. The permittee shall submit quarterly deviation (excursion) reports which identify exceedances of any of the following:
  - the hourly emission limitation (as a monthly average), as determined in condition C.1.
2. The permittee shall submit quarterly deviation (excursion) reports which identify all 3-hour blocks of time during which the average temperature within the regenerative thermal oxidizer does not comply with the temperature limitation specified in condition B.2. 1 of this permit.
3. The permittee shall submit quarterly deviation (excursion) reports that include a log of the downtime for the capture (collection) system and/or the regenerative thermal oxidizer when the emissions unit was in operation.
4. The permittee shall submit quarterly written reports that:
  - identify all days during which any visible particulate emissions were observed from the stack serving this emissions unit, and
  - describe any corrective actions taken to eliminate the visible particulate emissions.
5. All quarterly reports shall be submitted in accordance with the General Terms and Conditions of this permit.

**E. Testing Requirements**

1. Compliance Methods Requirements: Compliance with the emission limitations in condition A.1 of the terms and conditions of this permit shall be determined in accordance with the following methods:  
Emissions Limitation:  
PE shall not exceed 0.12 lb/hour, 0.53 TPY.

Applicable Compliance Method:

Compliance may be demonstrated using the following equations based on the emission factor in AP-42, Table 1.4-2 (7/98):

$$[4.3 \text{ MMBtu/hr (oxidizer)} + 11.8 \text{ MMBtu/hr (press)}] (7.6 \text{ lb/MCF}) / (1000 \text{ BTU/CF}) = 0.12 \text{ lb/hr PE} ,$$

$$(0.12 \text{ lb/hr})(8760 \text{ hrs/hr})(0.0005 \text{ lb/ton}) = 0.53 \text{ TPY}$$

Annual emissions shall be determined by multiplying the hourly PE emission rate by 8760 hours per year and dividing by 2000 lbs/ton.

If required, particulate emissions shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

Emissions Limitation:

Visible particulate emissions from the RTO exhaust stack shall not exceed 0 % opacity , as a six minute average.

Compliance Method:

If required, visible particulate emissions shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources".

Emissions Limitation:

Emissions of NOx shall not exceed 1.61 lbs/hour, 7.05 TPY.

Compliance Method:

Compliance may be demonstrated using the following equations based on the emission factor in AP-42, Table 1.4-1 (7/98):

$$[4.3 \text{ MMBtu/hr (oxidizer)} + 11.8 \text{ MMBtu/hr (press)}] (100 \text{ lb/MCF}) / (1000 \text{ BTU/CF}) = 1.61 \text{ lbs/hr NOx} ,$$

$$(1.61 \text{ lbs/hr})(8760 \text{ hrs/hr})(0.0005 \text{ lb/ton}) = 7.05 \text{ TPY}$$

Annual emissions shall be determined by multiplying the hourly NOx emission rate by 8760 hours per year and dividing by 2000 lbs/ton.

If required, nitrogen oxides emissions shall be determined according to test Methods 1 - 4, and 7 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

Emissions Limitation:

Emissions of CO shall not exceed 1.35 lbs/hour, 5.92 TPY.

**Compliance Method:**

Compliance may be demonstrated using the following equations based on the emission factor in AP-42, Table 1.4-1 (7/98):

$$[4.3 \text{ MMBtu/hr (oxidizer)} + 11.8 \text{ MMBtu/hr (press)}] (84 \text{ lb/MCF}) / (1000 \text{ BTU/CF}) = 1.35 \text{ lbs/hr CO,} \\ (1.35 \text{ lbs/hr})(8760 \text{ hrs/hr})(0.0005 \text{ lb/ton}) = 5.92 \text{ TPY}$$

Annual emissions shall be determined by multiplying the hourly CO emission rate by 8760 hours per year and dividing by 2000 lbs/ton.

If required, carbon monoxide emissions shall be determined according to test Methods 1 - 4, and 10 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

**Emissions Limitation:**

Emissions of OC shall not exceed 2.2 lbs/hour and 9.67 TPY.

**Applicable Compliance Method:**

The permittee shall demonstrate compliance with the hourly OC emission limitation from this emissions unit through the record keeping required in condition C.1 of this permit. Compliance may be demonstrated using the following equations based on the emission factor in AP-42, Table 1.4-2 (7/98) and recordkeeping in this permit:

$$[4.3 \text{ MMBtu/hr (oxidizer)} + 11.8 \text{ MMBtu/hr (press)}] (5.5 \text{ lb/MCF}) / (1000 \text{ BTU/CF}) \text{ plus actual emissions as} \\ \text{calculated in C.1 from press inks} = 2.2 \text{ lbs/hr OC,} \\ (2.2 \text{ lbs/hr})(8760 \text{ hrs/hr})(0.0005 \text{ lb/ton}) = 9.67 \text{ TPY}$$

Annual emissions shall be determined by multiplying the hourly OC emission rate by 8760 hours per year and dividing by 2000 lbs/ton.

If required, organic compound emissions shall be determined according to test Methods 1 - 4, and 18, 25, or 25A as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

2. Emission testing requirements: The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
  - The emission testing shall be conducted within 6 months prior to permit expiration.
  - The emission testing shall be conducted to demonstrate compliance with the capture efficiency (see E.2.c.i) and destruction efficiency (see E.2.c.ii) for OC.
  - The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate:
    - i. In accordance with Ohio EPA's Engineering Guide #56, the capture efficiency may be assumed to be 100 percent for organic compounds not retained in the substrate or emitted uncontrolled, provided that the press dryer maintains a negative pressure within the press dryer and the dryer exhausts to a control device (the RTO). Therefore, during testing of the RTO, the permittee shall verify that a negative pressure is maintained within the press dryer.
    - ii. The destruction efficiency shall be conducted in accordance with the test methods and procedures specified in OAC rule 3745-21-10 and shall measure the percent reduction in mass emissions of organic compounds between the inlet and outlet of the thermal oxidizer. The test method selected shall be based on a consideration of the diversity of organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

As part of the performance test, the permittee shall collect and record the average temperature within the regenerative thermal oxidizer, in degrees Fahrenheit, and include this information with the results of the emissions report specified below.

The test(s) shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the Ohio EPA Southeast District Office.

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

Personnel from the Ohio EPA Southeast District Office 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 Ohio EPA Southeast District Office 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 Ohio EPA Southeast District Office.

**F. Miscellaneous Requirements**

1. None