Facility ID: 0285030295 Issuance type: Final State Permit To Operate

This version of facility specific terms and conditions was converted from a database format to an HTML file during an upgrade of the Ohio EPA, Division of Air Pollution Control's permitting software. Every attempt has been made to convert the terms and conditions to look and substantively conform to the permit issued or being drafted in STARS. However, the format of the terms may vary slightly from the original. In addition, although it is not expected, there is a slight possibility that a term and condition may have been inadvertently "left out" of this reproduction during the conversion process. Therefore, if this version is to be used as a starting point in drafting a new version of a permit, it is imperative that the entire set of terms and conditions be reviewed to ensure they substantively mimic the issued permit. The official version of any permit issued final by Ohio EPA is kept in the Agency's Legal section. The Legal section may be contacted at (614) 644-3037.

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.

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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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 53.1 feet long and 17.3 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

   (a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by

weight, and a minimum destruction efficiency of 95 percent, by weight.

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.

The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

   The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

   For any single HAP:

   (500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

   For total combined HAPs:

   (1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

   where:

   SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
   DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

   k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

   l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

   * A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

   TLV (mg/m3): 205,000

   Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

   Predicted 1-Hour Maximum Ground-Level
   Concentration (ug/m3): 227.5

   MAGLC (ug/m3): 4,880
   Physical changes to or changes in the method of operation of the emissions unit after its installation or

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

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R002 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 53.1 feet long and 17.3 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational

restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

   k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include

the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the

Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

report, where warranted, with prior approval from the Northeast District Office of Ohio EPA.

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R003 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 53.1 feet long and 17.3 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

b. the temperature of the desorption air stream entering the concentrator; and

c. the duration of each regeneration cycle for the concentrator.

The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through

R022, R025, and R026:

a. the name and identification number of each ink/coating employed;

b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

d. the number of gallons of each ink/coating employed;

e. the name and identification number of each cleanup material/thinner employed;

f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

h. the number of gallons of each cleanup material/thinner employed;

i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the

following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R004 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 61.4 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

   The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

   For any single HAP:

   (500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

   For total combined HAPs:

   (1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

   where:

   SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
   DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm,

the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

   k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

   l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

   * A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

   TLV (mg/m3): 205,000

   Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

   Predicted 1-Hour Maximum Ground-Level
   Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

   a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

   b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

   c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

   d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
   Emission Limitation:

   All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

   Applicable Compliance Method:

   Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
   Emission Limitation:

   OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

   Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R005 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 61.4 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.70 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of

Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.70 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE) x 2 (print heads)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

f. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or

persons responsible for the test and submitted to the Northeast District Office of Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of Ohio EPA.

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R006 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 61.4 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

a. the name and identification number of each ink/coating employed;

b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

d. the number of gallons of each ink/coating employed;

e. the name and identification number of each cleanup material/thinner employed;

f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

h. the number of gallons of each cleanup material/thinner employed;

i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R007 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 61.4 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

   The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

   For any single HAP:

   (500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

   For total combined HAPs:

   (1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

   where:

   SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
   DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm,

the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

   k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

   l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

   * A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

   TLV (mg/m3): 205,000

   Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

   Predicted 1-Hour Maximum Ground-Level
   Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

   a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

   b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

   c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

   d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
   Emission Limitation:

   All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

   Applicable Compliance Method:

   Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
   Emission Limitation:

   OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

   Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R008 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of

Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

f. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or

persons responsible for the test and submitted to the Northeast District Office of Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of Ohio EPA.

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R009 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

b. the temperature of the desorption air stream entering the concentrator; and

c. the duration of each regeneration cycle for the concentrator.

The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

a. the name and identification number of each ink/coating employed;

b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

d. the number of gallons of each ink/coating employed;

e. the name and identification number of each cleanup material/thinner employed;

f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

h. the number of gallons of each cleanup material/thinner employed;

i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R010 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

   The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

   For any single HAP:

   (500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

   For total combined HAPs:

   (1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

   where:

   SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
   DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm,

the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

   k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

   l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

   * A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

   TLV (mg/m3): 205,000

   Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

   Predicted 1-Hour Maximum Ground-Level
   Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

   a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

   b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

   c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

   d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
   Emission Limitation:

   All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

   Applicable Compliance Method:

   Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
   Emission Limitation:

   OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

   Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R011 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of

Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

f. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or

persons responsible for the test and submitted to the Northeast District Office of Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of Ohio EPA.

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R012 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

b. the temperature of the desorption air stream entering the concentrator; and

c. the duration of each regeneration cycle for the concentrator.

The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

a. the name and identification number of each ink/coating employed;

b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

d. the number of gallons of each ink/coating employed;

e. the name and identification number of each cleanup material/thinner employed;

f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

h. the number of gallons of each cleanup material/thinner employed;

i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R013 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

   The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

   For any single HAP:

   (500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

   For total combined HAPs:

   (1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

   where:

   SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
   DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm,

the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

   k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

   l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

   * A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

   TLV (mg/m3): 205,000

   Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

   Predicted 1-Hour Maximum Ground-Level
   Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

   a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

   b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

   c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

   d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
   Emission Limitation:

   All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

   Applicable Compliance Method:

   Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
   Emission Limitation:

   OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

   Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R014 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of

Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

f. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or

persons responsible for the test and submitted to the Northeast District Office of Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of Ohio EPA.

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R015 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

a. the name and identification number of each ink/coating employed;

b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

d. the number of gallons of each ink/coating employed;

e. the name and identification number of each cleanup material/thinner employed;

f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

h. the number of gallons of each cleanup material/thinner employed;

i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R016 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

   The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

   For any single HAP:

   (500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

   For total combined HAPs:

   (1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

   where:

   SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
   DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm,

the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

   k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

   l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

   * A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

   TLV (mg/m3): 205,000

   Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

   Predicted 1-Hour Maximum Ground-Level
   Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

   a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

   b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

   c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

   d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
   Emission Limitation:

   All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

   Applicable Compliance Method:

   Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
   Emission Limitation:

   OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

   Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R017 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of

Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

f. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or

persons responsible for the test and submitted to the Northeast District Office of Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of Ohio EPA.

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R018 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

a. the name and identification number of each ink/coating employed;

b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

d. the number of gallons of each ink/coating employed;

e. the name and identification number of each cleanup material/thinner employed;

f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

h. the number of gallons of each cleanup material/thinner employed;

i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R019 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.70 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

   The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

   For any single HAP:

   (500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

   For total combined HAPs:

   (1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

   where:

   SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
   DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm,

the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

   k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

   l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

   * A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

   TLV (mg/m3): 205,000

   Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

   Predicted 1-Hour Maximum Ground-Level
   Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

   a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

   b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

   c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

   d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
   Emission Limitation:

   All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

   Applicable Compliance Method:

   Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
   Emission Limitation:

   OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.70 pound per hour.

   Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE) x 2 (print heads)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R020 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of

Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

f. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or

persons responsible for the test and submitted to the Northeast District Office of Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of Ohio EPA.

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R021 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

a. the name and identification number of each ink/coating employed;

b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

d. the number of gallons of each ink/coating employed;

e. the name and identification number of each cleanup material/thinner employed;

f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

h. the number of gallons of each cleanup material/thinner employed;

i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.35 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R022 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ink jet printer 51.0 feet long and 22.1 feet wide and corresponding mixing operations controlled by 38,000 scfm Regensorb system	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.70 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

   The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

   For any single HAP:

   (500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

   For total combined HAPs:

   (1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

   where:

   SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
   DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm,

the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

   k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

   l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

   * A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

   TLV (mg/m3): 205,000

   Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

   Predicted 1-Hour Maximum Ground-Level
   Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

   a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

   b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

   c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

   d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
   Emission Limitation:

   All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

   Applicable Compliance Method:

   Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
   Emission Limitation:

   OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.70 pound per hour.

   Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE) x 2 (print heads)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (526 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0026 gal/sq. ft.);
OC = maximum ink/coating OC content (6.5 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R025 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
twist printing machine no. 1 inkjet printing on vinyl or other substrates, controlled by Regensorb concentrator and thermal oxidizer	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.03 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of

Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

   a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

   b. the temperature of the desorption air stream entering the concentrator; and

   c. the duration of each regeneration cycle for the concentrator.

   The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

   Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

   The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

   a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

   b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

   c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

   d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

   This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

   a. the name and identification number of each ink/coating employed;

   b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

   c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

   d. the number of gallons of each ink/coating employed;

   e. the name and identification number of each cleanup material/thinner employed;

   f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
   g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

   h. the number of gallons of each cleanup material/thinner employed;

   i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

   j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.03 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (250 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0003 gal/sq. ft.);
OC = maximum ink/coating OC content (7.6 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

f. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or

persons responsible for the test and submitted to the Northeast District Office of Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of Ohio EPA.

F. **Miscellaneous Requirements**

1. None

Facility ID: 0285030295 Emissions Unit ID: R026 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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
twist printing machine no. 2 inkjet printing on vinyl or other substrates, controlled by Regensorb concentrator and thermal oxidizer	OAC rule 3745-31-05(A)(3) (PTI 02-21700)	See sections A.2.a through A.2.d below.
	OAC rule 3745-21-07(G)(2)	The requirements of this rule are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(C) (PTI 02-21700)	9.9 tons per year of any single hazardous air pollutant (HAP), as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation See section B.1 below.

2. **Additional Terms and Conditions**

(a) All organic compounds/volatile organic compounds (OC/VOC) emitted by this emissions unit shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent, by weight, and a minimum destruction efficiency of 95 percent, by weight.
OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.03 pound per hour.
OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.
The hourly and annual OC/VOC emission limitations are based on this emissions unit's and the facility's potential to emit. Therefore, no record keeping or reporting are required to maintain compliance with these limits.
The building enclosure housing this emissions unit meets the criteria of a permanent total enclosure (defined in U.S. EPA's Reference Method 204), as previously demonstrated in the compliance tests performed on June 30, 1999 and March 24, 2005.

B. **Operational Restrictions**

1. The actual facility-wide input of hazardous air pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act shall not exceed 500,000 pounds per year of any single HAP and 1,250,000 pounds per year of combined HAPs. Compliance with these throughput restrictions shall be based on a rolling, 12-month summation.

The above throughput restrictions correspond to the emissions limitations specified in A.1. through the following equations:

For any single HAP:

(500,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 9.9 TPY

For total combined HAPs:

(1,250,000 lbs/yr HAP input) x (1 - SR) x (1 - DE) x (1 ton / 2,000 lbs) = 24.9 TPY

where:

SR = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency (0.95).

2. The average combustion temperature within the thermal oxidizer, for any three-hour block of time when the emissions unit is in operation, shall be no more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.

3. The set point for the desorption air stream temperature shall be maintained at or above the temperature established during the most recent emission test that demonstrated the emissions unit was in compliance. The temperature of the desorption air stream during the regeneration cycle shall not be more than 50 degrees Fahrenheit below this set point. An audible alarm shall be activated whenever the temperature of the desorption air stream is more than 50 degrees Fahrenheit below the set point.

4. The set point for the regeneration cycle time shall be maintained at the value established during the most recent emissions test that demonstrated compliance. The permittee shall maintain the duration of each regeneration cycle within five (5) percent of the set point. An audible alarm shall be activated whenever the duration of each regeneration cycle is not within five (5) percent of the set point.

5. Operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by Ohio EPA, compliance with the mass emission limitation shall be determined by performing concurrent mass emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitation.

6. Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be reported to the Northeast District Office of Ohio EPA in accordance with OAC rule 3745-15-06(B). Parameter deviations due to such malfunctions, that comply with the requirements of OAC rule 3745-15-06(B), do not constitute violations of the operational restrictions for this emissions unit.

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

1. The permittee shall operate and maintain continuous temperature and time monitors that measure the following when the emissions unit is in operation:

a. the temperature of the exhaust gases in the combustion zone of the thermal oxidizer;

b. the temperature of the desorption air stream entering the concentrator; and

c. the duration of each regeneration cycle for the concentrator.

The permittee shall operate a continuous temperature recorder for the temperature of the exhaust gases in the combustion zone of the thermal oxidizer, and record the temperature when the emissions unit is in operation.

Units shall be in degrees Fahrenheit and minutes. The accuracy for each thermocouple, monitor, clock, and recorder shall be guaranteed by the manufacturer to be within one (1) percent of the temperature/time being measured or five (5) degrees Fahrenheit/0.5 minute, whichever is greater. The temperature monitors and recorders shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

2. The permittee shall operate and maintain audible alarms for deviations in the temperature of the desorption air stream entering the concentrator and the duration of each regeneration cycle for the concentrator. The set points and alarm activation levels shall be set at the values specified in sections B.3 and B.4 above.

The permittee shall maintain a log of each instance when an audible alarm is activated, the cause of the alarm, the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operational parameters.

3. The permittee shall maintain a log or record of operating time for the capture (collection) system, control devices, monitoring equipment, and the associated emissions unit.

4. On each day of operation of the control system for this emissions unit, the permittee shall record the set points and alarm activation levels, and the corresponding values of temperature and time duration. At least once per calendar month, the permittee shall calibrate the set points and alarm activation levels and maintain records of the results of each calibration.

5. The permittee shall collect and record the following information each month for all organic compounds employed in emissions units R001 through R022, R025, and R026:

a. the name and identification of each liquid organic compound contained in coatings, inks, and cleanup materials employed;

b. the amount of each liquid organic compound employed in coatings, inks, and cleanup materials, in gallons;

c. the OC content of each liquid organic compound employed in coatings, inks, and cleanup materials, in lbs of OC/gallon; and

d. the total combined monthly OC emissions [summation of (b x c) for each liquid organic compound employed in coatings, inks, and cleanup materials multiplied by one (1) minus the retention factor determined in the 12/30/97 BAT study (0.209), multiplied by one (1) minus the overall control efficiency determined during the most recent emission test that demonstrated the emissions unit was in compliance].

This information does not have to be kept on a line-by-line basis.

6. The permittee shall collect and record the following information each month for emissions units R001 through R022, R025, and R026:

a. the name and identification number of each ink/coating employed;

b. the individual HAP* content for each HAP of each ink/coating in pounds of individual HAP per gallon of ink/coating, as applied;

c. the total combined HAP content of each ink/coating in pounds of combined HAPs per gallon of ink/coating, as applied [sum all the individual HAP contents from (b)];

d. the number of gallons of each ink/coating employed;

e. the name and identification number of each cleanup material/thinner employed;

f. the individual HAP content for each HAP of each cleanup material/thinner, in pounds of individual HAP per gallon of cleanup material, as applied;
g. the total combined HAP content of each cleanup material/thinner, in pounds of combined HAPs per gallon of cleanup material/thinner, as applied [sum all the individual HAP contents from (f)];

h. the number of gallons of each cleanup material/thinner employed;

i. the total individual HAP input for each HAP from all inks/coatings and cleanup materials/thinner employed, in pounds per month [for each HAP the sum of (b) times (d) for each ink/coating, plus the sum of (f) times (h) for each cleanup material/thinner];

j. the total combined HAP input from all inks/coatings, and cleanup materials/thinner employed, in pounds per month [the sum of (c) times (d) for each ink/coating plus the sum of (g) times (h) for each cleanup material/thinner];

k. the updated rolling, 12-month summation of the input for each individual HAP, in pounds. This shall include the information for the current month and the preceding eleven calendar months; and

l. the updated rolling, 12-month summation of the input for total combined HAPs, in pounds. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Northeast District Office contact. This information does not have to be kept on a line-by-line basis.

7. The permit to install for emissions units R001 through R022, R025 and R026 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: MIBK

TLV (mg/m3): 205,000

Maximum Hourly Emission Rate (lbs/hr): 8.81 lbs/hr

Predicted 1-Hour Maximum Ground-Level
Concentration (ug/m3): 227.5

MAGLC (ug/m3): 4,880
Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound 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.).
If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, 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 the 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.

D. **Reporting Requirements**

1. The permittee shall submit quarterly temperature/time deviation (excursion) reports that identify the following:

a. all three (3)-hour blocks of time during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

b. all instances when the set points and alarm activation levels for the temperature of the desorption air stream prior to the concentrator did not comply with the limitations specified in section B.3, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation;

c. all instances when the set points and alarm activation levels for the duration of the regeneration cycle did not comply with the limitations specified in section B.4, based on the records maintained pursuant to section C.4 of these terms and conditions, and the magnitude of each deviation; and

d. all instances when an audible alarm was activated, the cause of each alarm (if known), the time interval of the deviation, the magnitude of the deviation (in degrees Fahrenheit and/or in minutes, as applicable), and the corrective action taken to restore the correct operating parameters.

2. The permittee shall submit annual reports that specify the total OC emissions for emissions units R001 through R022, R025, and R026 combined, for the previous calendar year. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 30 of each year and shall cover the previous calendar year.

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month HAP emission limitations.

E. **Testing Requirements**

1. Compliance with the emission limitations specified in section A.1 shall be determined in accordance with the following methods:
Emission Limitation:

All OC/VOC emitted by this emissions unit shall be shall be vented to a flow concentrator and thermal oxidizer with a minimum capture efficiency of 100 percent by weight and a minimum destruction efficiency of 95 percent by weight.

Applicable Compliance Method:

Compliance with the above requirement shall be determined through emission testing as outlined in section E.2 below. Method 24A shall be used to determine the organic compound contents of the coatings, inks, and cleanup materials.
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in this emissions unit shall not exceed 0.03 pound per hour.

Applicable Compliance Method:

Compliance with the hourly OC/VOC limitation shall be determined using the following equation:

E = MP x G x OC x (1 - RF) x (1 - DE)

where:

E = hourly emission rate, in lbs/hr;
MP = maximum amount of material printed per hour (250 sq. ft./hr);
G = ink usage factor, in gallons of ink/coating per sq. ft. (0.0003 gal/sq. ft.);
OC = maximum ink/coating OC content (7.6 lbs/gal);
RF = solvent retention factor, determined through the 12/30/97 BAT study (0.209); and
DE = minimum fractional destruction efficiency of the control system (0.95).
Emission Limitation:

OC/VOC emissions from all coatings and inks employed in emissions units R001 through R022, R025, and R026 shall not exceed 8.81 lbs/hr and 38.59 tons per year.

Applicable Compliance Method:

Compliance with the annual OC/VOC limit shall be determined by the record keeping specified in section C.5.
Emission Limitation:

9.9 tons per year of any single HAP, as a rolling, 12-month summation and 24.9 tons per year of combined HAPs, as a rolling, 12-month summation

Applicable Compliance Method:

Compliance with the annual HAP limitations shall be determined by the record keeping specified in section C.6.

2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirement.

a. The emissions testing shall be conducted by March 24, 2008.

b. The emissions testing shall be conducted to demonstrate compliance with the destruction efficiency requirement specified in section A.2.a.

c. 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 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
d. 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 Northeast District Office of Ohio EPA.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test' notification to the Northeast District Office of Ohio EPA. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units 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 Northeast District Office of Ohio EPA's refusal to accept the results of the emissions test(s).

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

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

F. **Miscellaneous Requirements**

1. None