State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL MODIFICATION** **CERTIFIED MAIL**
**LUCAS COUNTY**

Street Address: 50 West Town Street, Suite 700
Lazarus Gov. Center **TELE:** (614) 644-3020 **FAX:** (614) 644-2329
Mailing Address: Lazarus Gov. Center P.O. Box 1049

**Application No: 04-01445**
**Fac ID:** 0448011550
**DATE: 1/16/2007**

Dynea USA Inc
Robyn Sigler
6175 American Rd
Toledo, OH 43612

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

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of $70.00 which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

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

Sincerely,

Michael W. Ahern

Michael W. Ahern, Manager
Permit Issuance and Data Management Section
Division of Air Pollution Control

CC: **USEPA** **TDES**

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

**Permit To Install** **Issue Date: 1/16/2007**
**Terms and Conditions** **Effective Date: 1/16/2007**

**FINAL ADMINISTRATIVE MODIFICATION OF PERMIT TO INSTALL 04-01445**

| | |
|---|---|
| Application Number: | 04-01445 |
| Facility ID: | 0448011550 |
| Permit Fee: | **$375** |
| Name of Facility: | Dynea USA Inc |
| Person to Contact: | Robyn Sigler |
| Address: | 6175 American Rd<br>Toledo, OH 43612 |

Location of proposed air contaminant source(s) [emissions unit(s)]:
**6175 American Rd**
**Toledo**, **Ohio**

Description of proposed emissions unit(s):
**Administrative modification to allow for urea-formaldehyde resin to be produced in Kettle 2.**

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Laura Powell
Acting Director

## Part I - GENERAL TERMS AND CONDITIONS

### A. Permit to Install General Terms and Conditions

#### 1. Compliance Requirements

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

#### 2. Reporting Requirements

The permittee shall submit required reports in the following manner:

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

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

#### 3. Records Retention Requirements

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

#### 4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon

the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

**5. Scheduled Maintenance/Malfunction Reporting**

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

**6. Permit Transfers**

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

**7. Air Pollution Nuisance**

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

**8. Termination of Permit to Install**

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

**9. Construction of New Sources(s)**

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

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

**10. Public Disclosure**

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

**11. Applicability**

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

**12. Best Available Technology**

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

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

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

**14. Construction Compliance Certification**

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

**15. Fees**

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

**B. Permit to Install Summary of Allowable Emissions**

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

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

| Pollutant | Tons Per Year |
|---|---|
| CO | 57.38 |
| VOC | 2.4 |

Emissions Unit ID: **P001**

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

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

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

**Operations, Property, and/or Equipment - (P001) - Urea-formaldehyde and phenol-formaldehyde resin manufacturing process with wet scrubber and electrically heated catalytic oxidizer control**

| Applicable Rules/Requirements | Applicable Emissions Limitations/Control Measures |
|---|---|
| OAC rule 3745-31-05(A)(3) | Volatile organic compounds (VOC) emissions shall not exceed 0.22 lb/hr and 0.96 tpy. |
| | Visible particulate emissions from the catalytic incinerator stack shall not exceed 0% opacity, as a 6-minute average. |
| | Formaldehyde emissions shall not exceed 0.137 lb/hr and 0.6 tpy. |
| | Methanol emissions shall not exceed 0.023 lb/hr and 0.1 tpy. |
| | Phenol emissions shall not exceed 0.023 lb/hr and 0.1 tpy. |
| | See section A.2.a. |
| OAC rule 3745-21-09(DD) | See section A.2.b. |
| OAC rule 3745-21-09(EE) | See section A.2.c. |

**2. Additional Terms and Conditions**

**2.a** The requirements of this rule include compliance with the requirements of OAC rules 3745-21-09(DD) and 3745-21-09(EE). Fugitive emissions from equipment leaks are included in emissions unit P801.

**2.b** The permittee shall comply with all applicable requirements of OAC rule 3745-21-09(DD). Fugitive emissions from equipment leaks are included in emissions unit P801.

**2.c** The permittee shall vent emissions to a catalytic incinerator that is designed and operated to:

i. Reduce emissions of total organic compounds (less methane and ethane) with an efficiency of at least 98%, by weight; or

ii. Emit VOC at a concentration less than 20 parts per million by volume, dry basis.

## B. Operational Restrictions

1. For the resin plant incinerator, the average temperature of the exhaust gases immediately before the catalyst bed, for any 3-hour block of time when the emissions unit is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance. The average temperature difference across the catalyst bed, for any 3-hour block of time when the emissions unit is in operation, shall not be less than 80 percent of the average temperature difference during the most recent emission test that demonstrated the emissions unit was in compliance.

## C. Monitoring and/or Record keeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorder(s) which measure and record(s) the temperature immediately upstream and downstream of the incinerators' catalyst bed when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring and recorder(s) shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

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

   a. All 3-hour blocks of time (when the emissions unit was in operation) during which the average temperature of the exhaust gases immediately before the catalyst bed was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance;

   b. All 3-hour blocks of time (when the emissions unit was in operation) during which the average temperature difference across the catalyst bed was less than 80% of the average temperature difference during the most recent emission test that demonstrated the emissions unit was in compliance; and

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

2. The permittee shall perform weekly checks, when the emissions unit is in operation and

when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. The color of the emissions;
b. The total duration of any visible emission incident; and

c. Any corrective actions taken to eliminate the visible emissions.

## D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify all 3-hour blocks of time when the emissions unit was in operation during which the average temperature of the exhaust gases immediately before the catalyst bed or the average temperature difference across the catalyst bed does not comply with the limitations specified above.

2. The permittee shall submit written reports that (a) identify all days during which any visible particulate emissions were observed from the stack serving this emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions.

3. The permittee shall submit to the City of Toledo, Division of Environmental Services quarterly summaries of these records. The quarterly reports shall be submitted by April 30, July 31, October 31 and January 31, and shall cover the records for the previous calendar quarter. If no deviations occur in the calendar quarter, the permittee shall submit a quarterly report which states that no deviations occurred during the preceding 3-month period.

## E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:

   a. Emission Limitation:

      Visible particulate emissions from the catalytic incinerator stack shall not exceed 0% opacity, as a 6-minute average.

      Applicable Compliance Method:

      If required, the permittee shall demonstrate compliance using Method 9 of 40 CFR
      Part 60, Appendix A.

b. Emission Limitation:

VOC emissions shall not exceed 0.22 lb/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 18 or 1 through 4 and 25A of 40 CFR Part 60, Appendix A, as appropriate, using the methods and procedures specified in OAC rule 3745-21-10. Alternative USEPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emission Limitation:

VOC emissions shall not exceed 0.96 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable VOC emission limitation (0.22 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

d. Emission Limitation:

Formaldehyde emissions shall not exceed 0.137 lb/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emissions limitation through emission testing performed in accordance with Method 18 of 40 CFR Part 60, Appendix A. Alternative, USEPA-approved test methods may be used with prior approval from the Ohio EPA.

e. Emission Limitation:

Formaldehyde emissions shall not exceed 0.6 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable formaldehyde emission limitation (0.137 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

Methanol emissions shall not exceed 0.023 lb/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Method 308 of 40 CFR Part 63, Appendix A. Alternative, USEPA-approved test methods may be used with prior approval from the Ohio EPA.

g. Emission Limitation:

Methanol emissions shall not exceed 0.1 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable methanol emission limitation (0.023 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

h. Emission Limitation:

Phenol emissions shall not exceed 0.023 lb/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Method 18 of 40 CFR Part 60, Appendix A. Alternative, USEPA-approved test methods may be used with prior approval from the Ohio EPA.

i. Emission Limitation:

Phenol emissions shall not exceed 0.1 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable methanol emission limitation (0.023 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

j. Emission Limitation:

Reduce organic compounds (less methane & ethane) with an efficiency of 98% by weight, or emit 20 ppm VOC by volume, dry basis

Applicable Compliance Method:

The methods and procedures of OAC rule 3745-21-10 shall be used to demonstrate compliance. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

2. The permittee shall conduct joint emissions testing for emissions units P001, P002 and P003 within 180 days of startup under the terms of this PTI, but no later than 60 days after achieving the maximum production rate in emissions unit P003 under the terms of this PTI.

a. The emission testing shall be conducted to demonstrate compliance with the hourly VOC emission limitation and the required destruction efficiency for this emissions unit.

b. Compliance with the allowable VOC emission limitation and the control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the

resin plant incinerator) shall be determined in accordance with the test methods and procedures specified in 40 CFR 60.614 along with the procedures specified in OAC rule 3745-21-10(C) or an alternative test protocol approved by the Ohio EPA. 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.

i. Concentration (mass/volume) and flow rate (volume) determinations shall be performed jointly for the uncontrolled gas streams associated with the resin plant incinerator (P001, P002 and P003) which are directed to the resin plant incinerator. The total mass of uncontrolled emissions may be calculated as the summation of the concentration multiplied by the flow for each stream.

ii. The controlled emission rate from this emissions unit (P001), in pounds VOC per hour, shall be determined by multiplying the decimal fraction of emissions associated with this emissions unit (P001), (i.e., the mass of uncontrolled emissions associated with this emissions unit (P001)) by the total mass of uncontrolled emissions from all emissions units (P001, P002 and P003) directed to the resin plant incinerator, multiplied by the destruction efficiency of the catalytic incinerator.

iii. The control efficiency of the resin plant incinerator shall be determined using a summation of the total mass of uncontrolled emissions from all emissions units (P001, P002 and P003) which are directed to the resin plant incinerator as the mass emissions at the inlet, minus the total mass of controlled VOC emissions determined during this stack test, in pounds per hour. Divide the difference by the mass emissions at the inlet of the resin plant incinerator and multiply by 100%.

c. The test(s) shall be conducted while emissions units P001, P002 and P003 are operating at or near their maximum capacities, unless otherwise specified or approved by the City of Toledo, Division of Environmental Services.

## F. Miscellaneous Requirements

1. This permit to install supercedes all requirements contained in PTI 04-01378 for emissions unit P001. All requirements of this permit to install are federally enforceable.

Emissions Unit ID: **P001**

**Modification Issued: 1/16/2007**

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

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

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

**Operations, Property, and/or Equipment - (P002) - Phenol-formaldehyde and urea-formaldehyde resin manufacturing process with wet scrubber and electrically heated catalytic incinerator control**

| Applicable Rules/Requirements | Applicable Emissions Limitations/Control Measures |
|---|---|
| OAC rule 3745-31-05(A)(3) | Volatile organic compounds (VOC) emissions shall not exceed 0.22 lb/hr and 0.96 tpy. |
| | Visible particulate emissions from the catalytic incinerator stack shall not exceed 0% opacity, as a 6-minute average. |
| | Formaldehyde emissions shall not exceed 0.137 lb/hr and 0.6 tpy. |
| | Methanol emissions shall not exceed 0.023 lb/hr and 0.1 tpy. |
| | Phenol emissions shall not exceed 0.023 lb/hr and 0.1 tpy. |
| | See section A.2.a. |
| OAC rule 3745-21-09(DD) | See section A.2.b. |
| OAC rule 3745-21-09(EE) | See section A.2.c. |

**2. Additional Terms and Conditions**

**2.a** The requirements of this rule include compliance with the requirements of OAC rules 3745-21-09(DD) and 3745-21-09(EE). Fugitive emissions from equipment leaks are included in emissions unit P801.

**2.b** The permittee shall comply with all applicable requirements of OAC rule 3745-21-09(DD). Fugitive emissions from equipment leaks are included in emissions unit P801.

**2.c** The permittee shall vent emissions to a catalytic incinerator that is designed and operated to:

i. Reduce emissions of total organic compounds (less methane and ethane) with an efficiency of at least 98%, by weight; or

ii. Emit VOC at a concentration less than 20 parts per million by volume, dry basis.

## B. Operational Restrictions

1. For the resin plant incinerator, the average temperature of the exhaust gases immediately before the catalyst bed, for any 3-hour block of time when the emissions unit is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance. The average temperature difference across the catalyst bed, for any 3-hour block of time when the emissions unit is in operation, shall not be less than 80 percent of the average temperature difference during the most recent emission test that demonstrated the emissions unit was in compliance.

## C. Monitoring and/or Record keeping Requirements

1. The permittee shall operate and maintain continuous temperature monitors and recorder(s) which measure and record(s) the temperature immediately upstream and downstream of the incinerators' catalyst bed when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring and recorder(s) shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

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

   a. All 3-hour blocks of time (when the emissions unit was in operation) during which the average temperature of the exhaust gases immediately before the catalyst bed was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance;

   b. All 3-hour blocks of time (when the emissions unit was in operation) during which the average temperature difference across the catalyst bed was less than 80%

of the average temperature difference during the most recent emission test that demonstrated the emissions unit was in compliance; and

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

2. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. The color of the emissions;

b. The total duration of any visible emission incident; and

c. Any corrective actions taken to eliminate the visible emissions.

## D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify all 3-hour blocks of time when the emissions unit was in operation during which the average temperature of the exhaust gases immediately before the catalyst bed or the average temperature difference across the catalyst bed does not comply with the limitations specified above.

2. The permittee shall submit written reports that (a) identify all days during which any visible particulate emissions were observed from the stack serving this emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions.

3. The permittee shall submit to the City of Toledo, Division of Environmental Services quarterly summaries of these records. The quarterly reports shall be submitted by April 30, July 31, October 31 and January 31, and shall cover the records for the previous calendar quarter. If no deviations occur in the calendar quarter, the permittee shall submit a quarterly report which states that no deviations occurred during the preceding 3-month period.

## E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:

   a. Emission Limitation:

      Visible particulate emissions from the catalytic incinerator stack shall not exceed 0% opacity, as a 6-minute average.

      Applicable Compliance Method:

      If required, the permittee shall demonstrate compliance using Method 9 of 40 CFR Part 60, Appendix A.

   b. Emission Limitation:

      VOC emissions shall not exceed 0.22 lb/hr.

      Applicable Compliance Method:

      If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 18 or 1 through 4 and 25A of 40 CFR Part 60, Appendix A, as appropriate, using the methods and procedures specified in OAC rule 3745-21-10. Alternative, USEPA-approved test methods may be used with prior approval from the Ohio EPA.

   c. Emission Limitation:

      VOC emissions shall not exceed 0.96 tpy.

      Applicable Compliance Method:

      The tpy emission limitation was developed by multiplying the short-term allowable VOC emission limitation (0.22 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

   d. Emission Limitation:

Formaldehyde emissions shall not exceed 0.137 lb/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emissions limitation through emission testing performed in accordance with Method 18 of 40 CFR Part 60, Appendix A. Alternative USEPA-approved test methods may be used with prior approval from the Ohio EPA.

e. Emission Limitation:

Formaldehyde emissions shall not exceed 0.6 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable formaldehyde emission limitation (0.137 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton.

Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

Methanol emissions shall not exceed 0.023 lb/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Method 308 of 40 CFR Part 63 Appendix A. Alternative USEPA-approved test methods may be used with prior approval from the Ohio EPA.

g. Emission Limitation:

Methanol emissions shall not exceed 0.1 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable methanol emission limitation (0.023 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

h. Emission Limitation:

Phenol emissions shall not exceed 0.023 lb/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Method 18 of 40 CFR Part 60, Appendix A. Alternative USEPA-approved test methods may be used with prior approval from the Ohio EPA.

i. Emission Limitation:

Phenol emissions shall not exceed 0.1 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable methanol emission limitation (0.023 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

j. Emission Limitation:

Reduce organic compounds (less methane & ethane) with an efficiency of 98% by weight, or emit 20 ppm VOC by volume, dry basis.

Applicable Compliance Method:

The methods and procedures of OAC rule 3745-21-10 shall be used to demonstrate compliance. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

2. The permittee shall conduct joint emissions testing for emissions units P001, P002 and

P003 within 180 days of startup, under the terms of this PTI, but no later than 60 days after achieving the maximum production rate in emissions unit P003 under the terms of this PTI.

a. The emission testing shall be conducted to demonstrate compliance with the hourly VOC emission limitation and the required destruction efficiency for this emissions unit.

b. Compliance with the allowable VOC emission limitation and the control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the resin plant incinerator) shall be determined in accordance with the test methods and procedures specified in 40 CFR 60.614 along with the procedures specified in OAC rule 3745-21-10(C) or an alternative test protocol approved by the Ohio EPA. 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.

i. Concentration (mass/volume) and flow rate (volume) determinations shall be performed jointly for the uncontrolled gas streams associated with the resin plant incinerator (P001, P002 and P003) which are directed to the resin plant incinerator. The total mass of uncontrolled emissions may be calculated as the summation of the concentration multiplied by the flow for each stream.

ii. The controlled emission rate from this emissions unit (P002), in pounds VOC per hour, shall be determined by multiplying the decimal fraction of emissions associated with this emissions unit (P002), (i.e., the mass of uncontrolled emissions associated with this emissions unit (P002)) by the total mass of uncontrolled emissions from all emissions units (P001, P002

and P003) directed to the resin plant incinerator, multiplied by the destruction efficiency of the catalytic incinerator.

iii. The control efficiency of the resin plant incinerator shall be determined using a summation of the total mass of uncontrolled emissions from all emissions units (P001, P002 and P003) which are directed to the resin plant incinerator as the mass emissions at the inlet, minus the total mass of controlled VOC emissions determined during this stack test, in pounds per hour. Divide the difference by the mass emissions at the inlet of the

resin plant incinerator and multiply by 100%.

c. The test(s) shall be conducted while emissions units P001, P002 and P003 are operating at or near their maximum capacities, unless otherwise specified or approved by the City of Toledo, Division of Environmental Services.

## F. Miscellaneous Requirements

1. This permit to install supercedes all requirements contained in PTI 04-01378 for emissions unit P002. All requirements of this permit to install are federally enforceable.

**Modification Issued: 1/16/2007**

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

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

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

**Operations, Property, and/or Equipment - (P003) - Formaldehyde manufacturing plant with electrically heated catalytic incinerator control**

| Applicable Rules/Requirements | Applicable Emissions Limitations/Control Measures |
|---|---|
| OAC rule 3745-31-05(A)(3) | Carbon monoxide (CO) emissions shall not exceed 13.1 lbs/hr and 57.38 tpy. |
| OAC rule 3745-31-02(A)(2) | Volatile organic compounds (VOC) emissions shall not exceed 0.11 lb/hr and 0.48 tpy.<br><br>Formaldehyde emissions shall not exceed 0.066 lb/hr and 0.289 tpy.<br><br>Methanol emissions shall not exceed 0.052 lb/hr and 0.224 tpy. |
| OAC rule 3745-21-09(DD) | See section A.2.c. |
| OAC rule 3745-21-09(EE) | See section A.2.d. |
| 40 CFR Part 60, Subpart III | See section A.2.a. |
| 40 CFR Part 60, Subpart VV | See section A.2.b. |
| ORC 3704.03(T)(4) | See section A.2.e. |

**2. Additional Terms and Conditions**

**2.a** The permittee shall vent all emissions to a catalytic incinerator that is designed and operated to:

i. Reduce emissions of total organic compounds (less methane & ethane) with an efficiency of at least 98%, by weight; or

ii. Emit VOC at a concentration less than 20 ppm by volume, on a dry basis corrected to 3% oxygen, whichever is less stringent.

**2.b** The permittee shall comply with all applicable requirements of 40 CFR Part 60, Subpart VV. Fugitive emissions from equipment leaks are included in emissions unit P801.

**2.c** The permittee shall comply with all applicable requirements of OAC rule 3745-21-09(DD). Fugitive emissions from equipment leaks are included in emissions unit P801.

**2.d** The requirements established pursuant to this rule are equivalent to or less stringent than the requirements of 40 CFR Part 60, Subpart III.

**2.e** The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the VOCs from this air contaminant source since the calculated annual emission rate for VOC is less than ten tons per year taking into account the federally enforceable rule limit of 98% emission reduction under OAC rule 3745-21-09(EE).

## B. Operational Restrictions

1. For the resin plant incinerator and the formaldehyde plant incinerator, the average temperature of the exhaust gases immediately before the catalyst bed, for any 3-hour block of time when the emissions unit is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance. The average temperature difference across the catalyst bed, for any 3-hour block of time when the emissions unit is in operation, shall not be less than 80 percent of the average temperature difference during the most recent emission test that demonstrated the emissions unit was in compliance.

## C. Monitoring and/or Record keeping Requirements

1. For both the resin plant incinerator and the formaldehyde plant incinerator, the permittee shall operate and maintain continuous temperature monitors and recorder(s) which measure and record(s) the temperature immediately upstream and downstream of the incinerators' catalyst bed when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The temperature monitors and recorder(s) shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

2. For both the resin plant incinerator and the formaldehyde plant incinerator, the permittee shall collect and record the following information each day:

   a. All 3-hour blocks of time (when the emissions unit was in operation) during which the average temperature of the exhaust gases immediately before the catalyst bed was more than 50 degrees Fahrenheit below the average temperature

      during the most recent emission test that demonstrated the emissions unit was in compliance;

   b. All 3-hour blocks of time (when the emissions unit was in operation) during which the average temperature difference across the catalyst bed was less than 80% of the average temperature difference during the most recent emission test that demonstrated the emissions unit was in compliance; and

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

3. The permittee shall operate and maintain a flow indicators that provide a record of vent stream flow to the resin plant and formaldehyde plant incinerators at least once every hour. The flow indicators shall be installed in the slip stream from emissions unit P003 to the formaldehyde plant incinerator and in the emissions unit P003 vent stream at a point after the slip stream from emissions unit P003 has been removed at a point closest to the inlet of each incinerator and before being joined with any other vent stream.

4. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log;

   a. The identity of the stack (i.e., resin plant stack or formaldehyde plant stack);

   b. The color of the emissions;

   c. The total duration of any visible emission incident; and

   d. Any corrective actions taken to eliminate the visible emissions.

## D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify all 3-hour blocks of time when the emissions unit was in operation during which the average combustion temperature within the catalytic incinerator does not comply with the temperature limitations above.

2. The permittee shall submit written reports that (a) identify all days which any visible particulate emissions were observed from the stack serving this emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions.

3. The permittee shall submit quarterly deviation reports that identify all 3-hour blocks of time during which the flow rate from emissions unit P003 was diverted to the resin plant incinerator and the average combustion temperature within the resin plant incinerator does not comply with the temperature limitations above.

4. The permittee shall submit to the City of Toledo, Division of Environmental Services quarterly summaries of these records. The quarterly reports shall be submitted by April 30, July 31, October 31 and January 31, and shall cover the records for the previous calendar quarter. If no deviations occur in the calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during the preceding 3-month period.

## E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:

   a. Emission Limitation:

      VOC emissions shall not exceed 0.11 lb/hr.

      Applicable Compliance Method:

      If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 18 or 1 through 4 and 25A of 40 CFR Part 60 Appendix A, as appropriate, using the methods and procedures specified in OAC rule 3745-21-10. Alternative USEPA-approved test methods may be used with prior

approval from the Ohio EPA.

b. Emission Limitation:

VOC emissions shall not exceed 0.48 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable VOC emission limitation (0.11 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitation:

CO emissions shall not exceed 13.1 lbs/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A. Alternative, USEPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

CO emissions shall not exceed 57.38 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable CO emission limitation (13.1 lbs/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitation:

Formaldehyde emissions shall not exceed 0.066 lb/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Method 18 of 40 CFR Part 60, Appendix A. Alternative USEPA-approved test methods may be used with prior approval from the Ohio EPA.

f. Emission Limitation:

Formaldehyde emissions shall not exceed 0.289 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term allowable formaldehyde emission limitation (0.066 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

g. Emission Limitation:

Methanol emissions shall not exceed 0.052 lb/hr.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Method 308 of 40 CFR Part 63, Appendix A. Alternative, USEPA-approved methods may be used with prior approval from the Ohio EPA.

h. Emission Limitation:

Methanol emissions shall not exceed 0.224 tpy.

Applicable Compliance Method:

The tpy emission limitation was developed by multiplying the short-term

allowable methanol emission limitation (0.052 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

i. Emission Limitation:

The permittee shall reduce emissions of total organic compounds (less methane & ethane) with an efficiency of at least 98%, by weight, or emit VOC at a concentration of less than 20 ppm by volume, on a dry basis corrected to 3% oxygen, whichever is less stringent.

Applicable Compliance Method:

The methods and procedures of 40 CFR 60.614 shall be used to demonstrate compliance. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

2. The permittee shall conduct joint emissions testing for emissions units P001, P002 and P003 within 180 days of startup under the terms of this PTI, but no later than 60 days after achieving the maximum production rate in emissions unit P003 under the terms of this PTI.

a. The emission testing shall be conducted to demonstrate compliance with the hourly VOC emission limitation and the required destruction efficiency.

b. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s);

i. Compliance with the allowable VOC emission limitation and the control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of each incinerator) shall be determined in accordance with the test methods and procedures specified in 40 CFR 60.614 along with the procedure specified in OAC rule 3745-21-10(C)(4), or an alternative test protocol approved by the Ohio EPA. 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 gasses.

c. The controlled emission rate from this emissions unit (P003) shall be determined

by the following calculations:

i. The summation of the controlled emissions associated with this emissions unit which are released from the control devices; (the formaldehyde plant incinerator and resin plant incinerator).

ii. Joint concentration and separate flow rate determinations shall be performed for uncontrolled gas streams associated with this emissions unit (P003) which are directed to the formaldehyde plant incinerator and resin plant incinerator. Joint flow rate and concentration determinations shall also be made for uncontrolled emissions associated with emissions units P001 and P002. Uncontrolled emissions may be calculated as the concentration multiplied by the flow.

iii. The destruction efficiency of the formaldehyde plant incinerator shall be determined using the uncontrolled emissions associated with emissions unit P003 directed to the formaldehyde plant incinerator.

iv. The destruction efficiency of resin plant incinerator shall be determined using a summation of the uncontrolled emissions associated with emissions unit P003 and the uncontrolled emissions from emissions units P001 and P002 directed to the resin plant incinerator.

v. The controlled emissions from emissions unit P003 shall be reported as the controlled emissions of the formaldehyde plant incinerator plus the uncontrolled emissions associated with emissions unit P003 directed to the resin plant incinerator multiplied by one minus the efficiency determined for the resin plant incinerator.

The test(s) shall be conducted while emissions units P001, P002 and P003 are operating at or near their maximum capacities, unless otherwise specified or approved by the City of Toledo, Division of Environmental Services.

## F. Miscellaneous Requirements

1. This permit to install supercedes all requirements contained in PTI 04-01378 for emissions unit P003. All requirements of this permit to install are federally enforceable.