



State of Ohio Environmental Protection Agency

Street Address:

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122 S. Front Street  
Columbus, OH 43215

TELE: (614) 644-3020 FAX: (614) 644-2329

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Lazarus Gov. Center  
P.O. Box 1049  
Columbus, OH 43216-1049

**RE: FINAL PERMIT TO INSTALL  
WARREN COUNTY  
Application No: 14-05540**

**CERTIFIED MAIL**

Y	TOXIC REVIEW
	PSD
Y	SYNTHETIC MINOR
	CEMS
	MACT
	NSPS
	NESHAPS
	NETTING
	MAJOR NON-ATTAINMENT
	MODELING SUBMITTED
	GASOLINE DISPENSING FACILITY

**DATE: 6/8/2004**

Knauf Polystyrene  
Chris Mahin  
240 Elizabeth Street  
Shelbyville, IN 461760000

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

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

Sincerely,

Michael W. Ahern, Supervisor  
Field Operations and Permit Section  
Division of Air Pollution Control

cc: USEPA

HCDES



**Permit To Install  
Terms and Conditions**

**Issue Date: 6/8/2004  
Effective Date: 6/8/2004**

**FINAL PERMIT TO INSTALL 14-05540**

Application Number: 14-05540  
APS Premise Number: 1483060393  
Permit Fee: **\$9300**  
Name of Facility: Knauf Polystyrene  
Person to Contact: Chris Mahin  
Address: 240 Elizabeth Street  
Shelbyville, IN 461760000

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**2725 Henkle Drive  
Lebanon, Ohio**

Description of proposed emissions unit(s):  
**Addition of equipment to and re-permitting of existing foam production process and installation of new lost foam production process.**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit 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 emissions unit(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 and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

  
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 quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

#### **3. 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

<u>Pollutant</u>	<u>Tons Per Year</u>
OC	88.77
PE/PM10	0.07
SO2	0.07
NOx	1.0
CO	0.13

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P001 - Block and shape EPS process - 9000 lbs/hr opening raw material boxes (EPS beads) OPBOX-01, fugitive emissions	OAC rule 3745-31-05(A)(3)	6.21 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	5.18 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1 are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitation.

**B. Operational Restrictions**

1. The maximum annual EPS bead usage rate for emissions unit P001 shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

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

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions units P001:
  - a. the EPS bead usage rate, in pounds, for each month;
  - b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;

- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from P001 (0.00069 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a (lbs EPS beads/month) x Ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

fugitive emissions from building:

[pentane loss from P001 (0.00069 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c (lbs EPS beads/rolling, 12-month period) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period.

- 3. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operation of emissions unit P001, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions unit P001 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

6.21 lbs/hr OC (pentane) as fugitive emissions from the building

### Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in OPBOX-01 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in OPBOX-01 (lb pentane/lb EPS) by the amount of pentane emitted in OPBOX-01 (lb pentane emissions/lb pentane).

2. Emissions Limitation

5.18 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The terms and conditions listed in this permit to install shall supercede all the air pollution control requirements for this emissions unit contained in permit to install 14-04295 as issued on August 13, 1997 and modified on August 5, 1998.
2. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

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

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

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P002 - Block and shape EPS process - 7000 lbs/hr batch expander EXP-01 and associated fluid bed drying with Regenerative Thermal Oxidizer (RTO-01)	OAC rule 3745-31-05(A)(3)	<p>7.61 lbs/hr OC (pentane) from the Regenerative Thermal Oxidizer (RTO) stack; 17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 &amp; P010, combined</p> <p>See T&amp;Cs A.2.a. and A.2.b.</p> <p>0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.02 lb/hr and 0.07 TPY of SO<sub>2</sub> from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.234 lb/hr and 1.0 TPY of NO<sub>x</sub> from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002,</p>

<p>fugitive emissions</p>	<p>OAC rule 3745-31-05(C)  Synthetic Minor to avoid Title V  and the Emission Offset  Requirements</p> <p>OAC rule 3745-31-05(A)(3)</p> <p>OAC rule 3745-31-05(C)  Synthetic Minor to avoid Title V  and the Emission Offset  Requirements</p>	<p>P003, P004, P005, P006, P007, P008  and P010, combined.</p> <p>Visible particulate emissions from the  RTO stack shall not exceed 10  percent opacity, as a six-minute  average, except as specified by rule.</p> <p>The requirements of this rule also  include compliance with the  requirements of OAC rule 3745-31-  05(C).</p> <p>8.16 TPY OC (pentane), based on a  rolling, 12-month summation, from  the RTO stack, emissions units P002,  P003 &amp; P004 combined.</p> <p>See T&amp;Cs B.1. and B.2.</p> <p>15.06 lbs/hr OC (pentane) as fugitive  emissions from the building</p> <p>16.14 TPY OC (pentane), based on a  rolling, 12-month summation, as  fugitive emissions from the building,  emissions units P002, P003 &amp; P004  combined.</p>
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**2. Additional Terms and Conditions**

- 2.a** The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b** The permittee shall maintain a control device (regenerative thermal oxidizer, RTO) capable of achieving a destruction efficiency of at least 95% for OC emissions.
- 2.c** The hourly emissions limitations outlined in T&C A.1 are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.d** Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by the use of an emissions capture and control system, a regenerative thermal oxidizer (RTO), for the control of OC emissions, compliance with the pentane content limitation of the EPS beads,

compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitations.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P002, P003 & P004, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table for emissions units P002, P003 & P004, combined:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

2. The average combustion temperature within the regenerative thermal oxidizer, 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.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.

2. The permittee shall maintain monthly records of the following information for emissions unit P002, P003 & P004, combined:
  - a. the EPS bead usage rate, in pounds, for each month;
  - b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
  - c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
  - d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month

fugitive emissions from building:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

emissions from RTO stack:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

fugitive emissions from building:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period.

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

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

- a. All 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance; and
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
4. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

1. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer does not comply with the temperature limitation specified in T&C B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).
2. The permittee shall submit annual reports which specify the total OC emissions from emissions units P002, P003 & P004 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

7.61 lbs/hr OC (pentane) from the RTO stack  
17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 & P010, combined  
a destruction efficiency at the RTO of at least 95% for OC emissions.

### **Applicable Compliance Method**

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of this Permit to Install;
- b. The emission testing shall be conducted to demonstrate compliance with the combined allowable mass emission rates for organic compounds (pentane) and the destruction efficiency requirements for organic compounds (pentane);
- c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates: for organic compounds, Method 25 or Method 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Hamilton County Department of Environmental Services. The test methods which must be employed to demonstrate compliance with the capture efficiency and control efficiency requirements for organic compounds are specified below;
- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Hamilton County Department of Environmental Services; and
- e. The destruction 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 the approved alternative test protocol (e.g., the mass balance protocol approved on 10/25/95, or another approved alternative. 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.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Hamilton County Department of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Hamilton County Department of Environmental Services refusal to accept the results of the emission test(s).

Personnel from the Hamilton County Department of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Hamilton County Department of Environmental Services 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 Hamilton County Department of Environmental Services.

2. Emissions Limitation

15.06 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in EXP-01 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in EXP-01 (lb pentane/lb EPS) by the amount of pentane emitted in EXP-01 (lb pentane emissions/lb pentane).

3. Emissions Limitation

8.16 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P002, P003 & P004 combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

4. Emissions Limitation

16.14 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P002, P003 & P004 combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

5. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

6. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

7. Emissions Limitations:

0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.02 lb/hr and 0.07 TPY of SO<sub>2</sub> from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.234 lb/hr and 1.0 TPY of NO<sub>x</sub> from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

Applicable Compliance Method:

Compliance with these emissions limitations shall be demonstrated by multiplying the hourly emission factors provided by Knauf Polystyrene dated 2/20/97 by 8760 hours per year then dividing by 2000 pounds per ton.

8. Emissions Limitations:

Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

## **F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, C.3, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P003 - Block and shape EPS process - 1600 lbs/hr continuous expander EXP-02 and associated fluid bed drying with Regenerative Thermal Oxidizer (RTO-01)	OAC rule 3745-31-05(A)(3)	<p>1.74 lbs/hr OC (pentane) from the Regenerative Thermal Oxidizer (RTO) stack; 17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 &amp; P010, combined</p> <p>See T&amp;Cs A.2.a. and A.2.b.</p> <p>0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.02 lb/hr and 0.07 TPY of SO<sub>2</sub> from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.234 lb/hr and 1.0 TPY of NO<sub>x</sub> from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002,</p>

<p>fugitive emissions</p>	<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p> <p>OAC rule 3745-31-05(A)(3)</p> <p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p>	<p>P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31- 05(C).</p> <p>8.16 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P002, P003 &amp; P004 combined.</p> <p>See T&amp;Cs B.1. and B.2.</p> <p>3.44 lbs/hr OC (pentane) as fugitive emissions from the building</p> <p>16.14 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P002, P003 &amp; P004 combined.</p>
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**2. Additional Terms and Conditions**

- 2.a** The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b** The permittee shall maintain a control device (regenerative thermal oxidizer, RTO) capable of achieving a destruction efficiency of at least 95% for OC emissions.
- 2.c** The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.d** Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by the use of an emissions capture and control system, a regenerative thermal oxidizer (RTO), for the control of OC emissions, compliance with the pentane content limitation of the EPS beads,

compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitations.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P002, P003 & P004, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table for emissions units P002, P003 & P004, combined:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

2. The average combustion temperature within the regenerative thermal oxidizer, 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.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.

2. The permittee shall maintain monthly records of the following information for emissions unit P002, P003 & P004, combined:
  - a. the EPS bead usage rate, in pounds, for each month;
  - b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
  - c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
  - d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month

fugitive emissions from building:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month; and ,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

emissions from RTO stack:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

fugitive emissions from building:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

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

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

- a. All 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance; and
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
4. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the

pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

1. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer does not comply with the temperature limitation specified in T&C B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).
2. The permittee shall submit annual reports which specify the total OC emissions from emissions units P002, P003 & P004 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

1.74 lbs/hr OC (pentane) from the RTO stack  
17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 & P010, combined  
a destruction efficiency at the RTO of at least 95% for OC emissions.

### Applicable Compliance Method

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of this Permit to Install;
- b. The emission testing shall be conducted to demonstrate compliance with the combined allowable mass emission rates for organic compounds (pentane) and the destruction efficiency requirements for organic compounds (pentane);
- c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates: for organic compounds, Method 25 or Method 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Hamilton County Department of Environmental Services. The test methods which must be employed to demonstrate compliance with the capture efficiency and control efficiency requirements for organic compounds are specified below;
- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Hamilton County Department of Environmental Services; and
- e. The destruction 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 the approved alternative test protocol (e.g., the mass balance protocol approved on 10/25/95, or another approved alternative. 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.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Hamilton County Department of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Hamilton County Department of Environmental Services refusal to accept the results of the emission test(s).

Personnel from the Hamilton County Department of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Hamilton County Department of Environmental Services 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 Hamilton County Department of Environmental Services.

2. Emissions Limitation

3.44 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in EXP-01 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in EXP-01 (lb pentane/lb EPS) by the amount of pentane emitted in EXP-01 (lb pentane emissions/lb pentane).

3. Emissions Limitation

8.16 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P002, P003 & P004 combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

4. Emissions Limitation

16.14 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P002, P003 & P004 combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

5. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

6. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

7. Emissions Limitations:

0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

Applicable Compliance Method:

Compliance with these emissions limitations shall be demonstrated by multiplying the hourly emission factors provided by Knauf Polystyrene dated 2/20/97 by 8760 hours per year then dividing by 2000 pounds per ton.

8. Emissions Limitations:

Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, C.3, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
<p>P004 - Block and shape EPS process - 400 lbs/hr continuous expander EXP-03 and associated fluid bed drying with Regenerative Thermal Oxidizer (RTO-01)</p>	<p>OAC rule 3745-31-05(A)(3)</p>	<p>0.44 lbs/hr OC (pentane) from the Regenerative Thermal Oxidizer (RTO) stack; 17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 &amp; P010, combined</p> <p>See T&amp;Cs A.2.a. and A.2.b.</p> <p>0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002,</p>

<p>fugitive emissions</p>	<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p> <p>OAC rule 3745-31-05(A)(3)</p> <p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p>	<p>P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31- 05(C).</p> <p>8.16 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P002, P003 &amp; P004 combined.</p> <p>See T&amp;Cs B.1. and B.2.</p> <p>0.86 lbs/hr OC (pentane) as fugitive emissions from the building</p> <p>16.14 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P002, P003 &amp; P004 combined.</p>
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**2. Additional Terms and Conditions**

- 2.a** The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b** The permittee shall maintain a control device (regenerative thermal oxidizer, RTO) capable of achieving a destruction efficiency of at least 95% for OC emissions.
- 2.c** The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.d** Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by the use of an emissions capture and control system, a regenerative thermal oxidizer (RTO), for the control of OC emissions, compliance with the pentane content limitation of the EPS beads,

compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitations.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P002, P003 & P004, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table for emissions units P002, P003 & P004, combined:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

2. The average combustion temperature within the regenerative thermal oxidizer, 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.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.

2. The permittee shall maintain monthly records of the following information for emissions unit P002, P003 & P004, combined:
- a. the EPS bead usage rate, in pounds, for each month;
  - b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
  - c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
  - d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month

fugitive emissions from building:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

emissions from RTO stack:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period  
fugitive emissions from building:

[pentane loss from P002, P003 & P004 (0.02391 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

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

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

- a. All 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance; and
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
4. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

1. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer does not comply with the temperature limitation specified in T&C B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).
2. The permittee shall submit annual reports which specify the total OC emissions from emissions units P002, P003 & P004 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

0.44 lbs/hr OC (pentane) from the RTO stack  
17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 & P010, combined  
a destruction efficiency at the RTO of at least 95% for OC emissions.

### **Applicable Compliance Method**

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of this Permit to Install;
- b. The emission testing shall be conducted to demonstrate compliance with the combined allowable mass emission rates for organic compounds (pentane) and the destruction efficiency requirements for organic compounds (pentane);

- c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates: for organic compounds, Method 25 or Method 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Hamilton County Department of Environmental Services. The test methods which must be employed to demonstrate compliance with the capture efficiency and control efficiency requirements for organic compounds are specified below;
- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Hamilton County Department of Environmental Services; and
- e. The destruction 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 the approved alternative test protocol (e.g., the mass balance protocol approved on 10/25/95, or another approved alternative. 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.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Hamilton County Department of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Hamilton County Department of Environmental Services refusal to accept the results of the emission test(s).

Personnel from the Hamilton County Department of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Hamilton County Department of Environmental Services 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 Hamilton County Department of Environmental Services.

## 2. Emissions Limitation

0.86 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in EXP-01 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in EXP-01 (lb pentane/lb EPS) by the amount of pentane emitted in EXP-01 (lb pentane emissions/lb pentane).

3. Emissions Limitation

8.16 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P002, P003 & P004 combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

4. Emissions Limitation

16.14 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P002, P003 & P004 combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

5. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

6. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

7. Emissions Limitations:

0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.02 lb/hr and 0.07 TPY of SO<sub>2</sub> from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.234 lb/hr and 1.0 TPY of NO<sub>x</sub> from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

Applicable Compliance Method:

Compliance with these emissions limitations shall be demonstrated by multiplying the hourly emission factors provided by Knauf Polystyrene dated 2/20/97 by 8760 hours per year then dividing by 2000 pounds per ton.

8. Emissions Limitations:

Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, C.3, D and E.

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

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

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P005 - Block and shape EPS process - 8600 lbs/hr batch storage (aging) bags SB-01 through SB-16 with Regenerative Thermal Oxidizer (RTO-01)	OAC rule 3745-31-05(A)(3)	<p>5.21 lbs/hr OC (pentane) from the Regenerative Thermal Oxidizer (RTO) stack; 17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 &amp; P010, combined</p> <p>See T&amp;Cs A.2.a. and A.2.b.</p> <p>0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002,</p>

<p>fugitive emissions</p>	<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p> <p>OAC rule 3745-31-05(A)(3)</p> <p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p>	<p>P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31- 05(C).</p> <p>4.55 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P005 &amp; P006 combined.</p> <p>See T&amp;Cs B.1. and B.2.</p> <p>10.31 lbs/hr OC (pentane) as fugitive emissions from the building</p> <p>8.99 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P005 &amp; P006 combined.</p>
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**2. Additional Terms and Conditions**

- 2.a** The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b** The permittee shall maintain a control device (regenerative thermal oxidizer, RTO) capable of achieving a destruction efficiency of at least 95% for OC emissions.
- 2.c** The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.d** Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by the use of an emissions capture and control system, a regenerative thermal oxidizer (RTO), for the control of OC emissions, compliance with the pentane content limitation of the EPS beads,

compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitations.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P005 & P006, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table for emissions units P005 & P006, combined:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

2. The average combustion temperature within the regenerative thermal oxidizer, 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.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.

2. The permittee shall maintain monthly records of the following information for emissions unit P005 & P006, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

[pentane loss from P005 & P006 (0.01332 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month; and,

fugitive emissions from building:

[pentane loss from P005 & P006 (0.01332 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

emissions from RTO stack:

[pentane loss from P005 & P006 (0.01332 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

fugitive emissions from building:

[pentane loss from P005 & P006 (0.01332 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

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

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

- a. All 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance; and
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
4. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics

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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the “Air Toxic Policy” will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a “modification” under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the “Air Toxic Policy”; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

1. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer does not comply with the temperature limitation specified in T&C B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).
2. The permittee shall submit annual reports which specify the total OC emissions from emissions units P005 & P006 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

5.21 lbs/hr OC (pentane) from the RTO stack  
17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 & P010, combined  
a destruction efficiency at the RTO of at least 95% for OC emissions.

### Applicable Compliance Method

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of this Permit to Install;

- b. The emission testing shall be conducted to demonstrate compliance with the combined allowable mass emission rates for organic compounds (pentane) and the destruction efficiency requirements for organic compounds (pentane);
- c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates: for organic compounds, Method 25 or Method 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Hamilton County Department of Environmental Services. The test methods which must be employed to demonstrate compliance with the capture efficiency and control efficiency requirements for organic compounds are specified below;
- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Hamilton County Department of Environmental Services; and
- e. The destruction 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 the approved alternative test protocol (e.g., the mass balance protocol approved on 10/25/95, or another approved alternative. 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.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Hamilton County Department of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Hamilton County Department of Environmental Services refusal to accept the results of the emission test(s).

Personnel from the Hamilton County Department of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Hamilton County Department of Environmental Services 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 Hamilton County Department of Environmental Services.

## 2. Emissions Limitation

10.31 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in SB-01 through SB-16 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in SB-01 through SB-16 (lb pentane/lb EPS) by the amount of pentane emitted in SB-01 through SB-16 (lb pentane emissions/lb pentane).

3. Emissions Limitation

4.55 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P005 & P006, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

4. Emissions Limitation

8.99 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P005 & P006, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

5. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

6. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

7. Emissions Limitations:

0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

Applicable Compliance Method:

Compliance with these emissions limitations shall be demonstrated by multiplying the hourly emission factors provided by Knauf Polystyrene dated 2/20/97 by 8760 hours per year then dividing by 2000 pounds per ton.

8. Emissions Limitations:

Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, C.3, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P006 - Block and shape EPS process - 1320 lbs/hr shape storage (aging) bags SB-17 through SB-30 with Regenerative Thermal Oxidizer (RTO-01)	OAC rule 3745-31-05(A)(3)	<p>0.80 lbs/hr OC (pentane) from the Regenerative Thermal Oxidizer (RTO) stack; 17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 &amp; P010, combined</p> <p>See T&amp;Cs A.2.a. and A.2.b.</p> <p>0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002,</p>

<p>fugitive emissions</p>	<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p> <p>OAC rule 3745-31-05(A)(3)</p> <p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p>	<p>P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31- 05(C).</p> <p>4.55 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P005 &amp; P006 combined.</p> <p>See T&amp;Cs B.1. and B.2.</p> <p>1.58 lbs/hr OC (pentane) as fugitive emissions from the building</p> <p>8.99 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P005 &amp; P006 combined.</p>
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**2. Additional Terms and Conditions**

- 2.a** The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b** The permittee shall maintain a control device (regenerative thermal oxidizer, RTO) capable of achieving a destruction efficiency of at least 95% for OC emissions.
- 2.c** The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.d** Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by the use of an emissions capture and control system, a regenerative thermal oxidizer (RTO), for the control of OC emissions, compliance with the pentane content limitation of the EPS beads,

compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitations.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P005 & P006, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table for emissions units P005 & P006, combined:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

2. The average combustion temperature within the regenerative thermal oxidizer, 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.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.

2. The permittee shall maintain monthly records of the following information for emissions unit P005 & P006, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

$[\text{pentane loss from P005 \& P006 (0.01332 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x capture efficiency (\%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (\%/100) x Ton/2000 lbs}] = \text{Tons OC (pentane)/month}$

fugitive emissions from building:

$[\text{pentane loss from P005 \& P006 (0.01332 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x (1 - capture efficiency (\%/100) x Ton/2000 lbs}] = \text{Tons OC (pentane)/month; and,}$

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

emissions from RTO stack:

$[\text{pentane loss from P005 \& P006 (0.01332 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x capture efficiency (\%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (\%/100) x Ton/2000 lbs}] = \text{Tons OC (pentane)/rolling, 12-month period}$

fugitive emissions from building:

[pentane loss from P005 & P006 (0.01332 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

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

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

- a. All 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance; and
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
4. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics

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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the “Air Toxic Policy” will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a “modification” under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the “Air Toxic Policy”; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

1. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer does not comply with the temperature limitation specified in T&C B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).
2. The permittee shall submit annual reports which specify the total OC emissions from emissions units P005 & P006 for the previous calendar year. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Emissions Limitations

0.80 lbs/hr OC (pentane) from the RTO stack  
17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 & P010, combined  
a destruction efficiency at the RTO of at least 95% for OC emissions.

**Applicable Compliance Method**

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of this Permit to Install;

- b. The emission testing shall be conducted to demonstrate compliance with the combined allowable mass emission rates for organic compounds (pentane) and the destruction efficiency requirements for organic compounds (pentane);
- c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates: for organic compounds, Method 25 or Method 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Hamilton County Department of Environmental Services. The test methods which must be employed to demonstrate compliance with the capture efficiency and control efficiency requirements for organic compounds are specified below;
- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Hamilton County Department of Environmental Services; and
- e. The destruction 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 the approved alternative test protocol (e.g., the mass balance protocol approved on 10/25/95, or another approved alternative. 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.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Hamilton County Department of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Hamilton County Department of Environmental Services refusal to accept the results of the emission test(s).

Personnel from the Hamilton County Department of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Hamilton County Department of Environmental Services 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 Hamilton County Department of Environmental Services.

## 2. Emissions Limitation

1.58 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in SB-17 through SB-30 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in SB-17 through SB-30 (lb pentane/lb EPS) by the amount of pentane emitted in SB-17 through SB-30 (lb pentane emissions/lb pentane).

3. Emissions Limitation

4.55 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P005 & P006, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

4. Emissions Limitation

8.99 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P005 & P006, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

5. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

6. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

7. Emissions Limitations:

0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

Applicable Compliance Method:

Compliance with these emissions limitations shall be demonstrated by multiplying the hourly emission factors provided by Knauf Polystyrene dated 2/20/97 by 8760 hours per year then dividing by 2000 pounds per ton.

8. Emissions Limitations:

Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, C.3, D and E.

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

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

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P007 - Block and shape EPS process - 6000 lbs/hr vacuum block mold press VAC-01 with Regenerative Thermal Oxidizer (RTO-01)	OAC rule 3745-31-05(A)(3)	<p>1.36 lbs/hr OC (pentane) from the Regenerative Thermal Oxidizer (RTO) stack; 17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 &amp; P010, combined</p> <p>See T&amp;Cs A.2.a. and A.2.b.</p> <p>0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002,</p>

<p>fugitive emissions</p>	<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p> <p>OAC rule 3745-31-05(A)(3)</p> <p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p>	<p>P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).</p> <p>1.70 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P007 &amp; P008 combined.</p> <p>See T&amp;Cs B.1. and B.2.</p> <p>2.69 lbs/hr OC (pentane) as fugitive emissions from the building</p> <p>3.36 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P007 &amp; P008 combined.</p>
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**2. Additional Terms and Conditions**

- 2.a** The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b** The permittee shall maintain a control device (regenerative thermal oxidizer, RTO) capable of achieving a destruction efficiency of at least 95% for OC emissions.
- 2.c** The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.d** Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by the use of an emissions capture and control system, a regenerative thermal oxidizer (RTO), for the control of OC emissions, compliance with the pentane content limitation of the EPS beads,

compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitations.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P007 & P008, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table for emissions units P007 & P008, combined:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

2. The average combustion temperature within the regenerative thermal oxidizer, 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.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.

2. The permittee shall maintain monthly records of the following information for emissions unit P007 & P008, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

[pentane loss from P007 & P008 (0.00497 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month

fugitive emissions from building:

[pentane loss from P007 & P008 (0.00497 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

emissions from RTO stack:

[pentane loss from P007 & P008 (0.00497 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

fugitive emissions from building:

[pentane loss from P007 & P008 (0.00497 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

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

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

- a. All 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance; and
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
4. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

1. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer does not comply with the temperature limitation specified in T&C B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).
2. The permittee shall submit annual reports which specify the total OC emissions from emissions units P007 & P008 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

1.36 lbs/hr OC (pentane) from the RTO stack  
17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 & P010, combined  
a destruction efficiency at the RTO of at least 95% for OC emissions.

### Applicable Compliance Method

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of this Permit to Install;

- b. The emission testing shall be conducted to demonstrate compliance with the combined allowable mass emission rates for organic compounds (pentane) and the destruction efficiency requirements for organic compounds (pentane);
- c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates: for organic compounds, Method 25 or Method 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Hamilton County Department of Environmental Services. The test methods which must be employed to demonstrate compliance with the capture efficiency and control efficiency requirements for organic compounds are specified below;
- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Hamilton County Department of Environmental Services; and
- e. The destruction 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 the approved alternative test protocol (e.g., the mass balance protocol approved on 10/25/95, or another approved alternative. 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.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Hamilton County Department of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Hamilton County Department of Environmental Services refusal to accept the results of the emission test(s).

Personnel from the Hamilton County Department of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Hamilton County Department of Environmental Services 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 Hamilton County Department of Environmental Services.

## 2. Emissions Limitation

2.69 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in VAC-01 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in VAC-01 (lb pentane/lb EPS) by the amount of pentane emitted in VAC-01 (lb pentane emissions/lb pentane).

3. Emissions Limitation

1.70 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P007 & P008, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

4. Emissions Limitation

3.36 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P007 & P008, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

5. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

6. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

7. Emissions Limitations:

0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

Applicable Compliance Method:

Compliance with these emissions limitations shall be demonstrated by multiplying the hourly emission factors provided by Knauf Polystyrene dated 2/20/97 by 8760 hours per year then dividing by 2000 pounds per ton.

8. Emissions Limitations:

Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, C.3, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
<p>P008 - Block and shape EPS process - 1320 lbs/hr shape mold presses SHP-01 through SHP-06 with Regenerative Thermal Oxidizer (RTO-01)</p>	<p>OAC rule 3745-31-05(A)(3)</p>	<p>0.30 lbs/hr OC (pentane) from the Regenerative Thermal Oxidizer (RTO) stack; 17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 &amp; P010, combined</p> <p>See T&amp;Cs A.2.a. and A.2.b.</p> <p>0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002,</p>

<p>fugitive emissions</p>	<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p> <p>OAC rule 3745-31-05(A)(3)</p> <p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p>	<p>P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31- 05(C).</p> <p>1.70 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P007 &amp; P008 combined.</p> <p>See T&amp;Cs B.1. and B.2.</p> <p>0.59 lbs/hr OC (pentane) as fugitive emissions from the building</p> <p>3.36 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P007 &amp; P008 combined.</p>
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**2. Additional Terms and Conditions**

- 2.a** The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b** The permittee shall maintain a control device (regenerative thermal oxidizer, RTO) capable of achieving a destruction efficiency of at least 95% for OC emissions.
- 2.c** The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.d** Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by the use of an emissions capture and control system, a regenerative thermal oxidizer (RTO), for the control of OC emissions, compliance with the pentane content limitation of the EPS beads,

compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitations.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P007 & P008, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table for emissions units P007 & P008, combined:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

2. The average combustion temperature within the regenerative thermal oxidizer, 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.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.

2. The permittee shall maintain monthly records of the following information for emissions unit P007 & P008, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

[pentane loss from P007 & P008 (0.00497 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month

fugitive emissions from building:

[pentane loss from P007 & P008 (0.00497 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

emissions from RTO stack:

[pentane loss from P007 & P008 (0.00497 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

fugitive emissions from building:

[pentane loss from P007 & P008 (0.00497 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x (1 - capture efficiency (%)/100) x Ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

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

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

- a. All 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance; and
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
4. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

1. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer does not comply with the temperature limitation specified in T&C B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).
2. The permittee shall submit annual reports which specify the total OC emissions from emissions units P007 & P008 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

0.30 lbs/hr OC (pentane) from the RTO stack  
17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 & P010, combined  
a destruction efficiency at the RTO of at least 95% for OC emissions.

### Applicable Compliance Method

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of this Permit to Install;

- b. The emission testing shall be conducted to demonstrate compliance with the combined allowable mass emission rates for organic compounds (pentane) and the destruction efficiency requirements for organic compounds (pentane);
- c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates: for organic compounds, Method 25 or Method 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Hamilton County Department of Environmental Services. The test methods which must be employed to demonstrate compliance with the capture efficiency and control efficiency requirements for organic compounds are specified below;
- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Hamilton County Department of Environmental Services; and
- e. The destruction 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 the approved alternative test protocol (e.g., the mass balance protocol approved on 10/25/95, or another approved alternative. 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.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Hamilton County Department of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Hamilton County Department of Environmental Services refusal to accept the results of the emission test(s).

Personnel from the Hamilton County Department of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Hamilton County Department of Environmental Services 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 Hamilton County Department of Environmental Services.

## 2. Emissions Limitation

0.59 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in SHP-01 through SHP-06 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in SHP-01 through SHP-06 (lb pentane/lb EPS) by the amount of pentane emitted in SHP-01 through SHP-06 (lb pentane emissions/lb pentane).

3. Emissions Limitation

1.70 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack, emissions units P007 & P008, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

4. Emissions Limitation

3.36 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P007 & P008, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

5. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

6. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

7. Emissions Limitations:

0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

Applicable Compliance Method:

Compliance with these emissions limitations shall be demonstrated by multiplying the hourly emission factors provided by Knauf Polystyrene dated 2/20/97 by 8760 hours per year then dividing by 2000 pounds per ton.

8. Emissions Limitations:

Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, C.3, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P009 - Block and shape EPS process - 5700 lbs/hr drying floor DRFL-01, fugitive emissions	OAC rule 3745-31-05(A)(3)	14.88 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	18.93 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P009 & P011, combined.  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month

EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitation.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions unit P009, P010 & P011, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions units P009 P010, & P011, combined:
  - a. the EPS bead usage rate, in pounds, for each month;

- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from P009 & P011 (0.00261 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month)] = Tons OC (pentane)/month; and

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

fugitive emissions from building:

[pentane loss from P009 & P011 (0.00261 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period)] = Tons OC (pentane)/rolling, 12-month period

- 3. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the

pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions units P009 & P011 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

14.88 lbs/hr OC (pentane) as fugitive emissions from the building

### **Applicable Compliance Method**

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in DRFL-01 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in DRFL-01 (lb pentane/lb EPS) by the amount of pentane emitted in DRFL-01 (lb pentane emissions/lb pentane).

2. Emissions Limitation

18.93 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P009 & P011, combined.

### **Applicable Compliance Method**

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P010 - Block and shape EPS process - 300 lbs/hr block drying room DRRM-01 with Total Enclosure and Regenerative Thermal Oxidizer (RTO-01)	OAC rule 3745-31-05(A)(3)	<p>0.04 lbs/hr OC (pentane) from the Regenerative Thermal Oxidizer (RTO) stack; 17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 &amp; P010, combined</p> <p>See T&amp;Cs A.2.a. and A.2.b.</p> <p>0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.234 lb/hr and 1.0 TPY of NOx from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002,</p>

<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements</p>	<p>P003, P004, P005, P006, P007, P008 and P010, combined.</p> <p>Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31- 05(C).</p> <p>0.98 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack</p> <p>See T&amp;Cs B.1. and B.2.</p>
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**2. Additional Terms and Conditions**

- 2.a** The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b** The permittee shall maintain an emissions capture and control device (Total Enclosure and regenerative thermal oxidizer, RTO) capable of achieving a collection efficiency of 100% and a destruction efficiency of at least 95% for OC emissions.
- 2.c** The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.d** Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by the use of a Total Enclosure emissions capture system, a regenerative thermal oxidizer (RTO), for the control of OC emissions, compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitations.

**B. Operational Restrictions**

1. The maximum annual EPS bead usage rate for emissions unit P009, P010 & P011, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

2. The average combustion temperature within the regenerative thermal oxidizer, 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.
3. The permanent total enclosure at the block drying room shall be maintained under negative pressure, at a minimum pressure differential that is not less than 0.007 inches of water, whenever the emissions unit is in operation.

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

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.

2. The permittee shall maintain monthly records of the following information for emissions units P009, P010, & P011, combined:
  - a. the EPS bead usage rate, in pounds, for each month;
  - b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
  - c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
  - d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

$$[\text{pentane loss from P010 (0.00261 lb pentane/lb EPS beads)} \times \text{the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month)} \times \text{capture efficiency (\%/100)} \times (1 - \text{RTO destruction efficiency documented during last compliant stack test (\%/100)}) \times \text{Ton/2000 lbs}] = \text{Tons OC (pentane)/month}; \text{ and,}$$
  - e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

emissions from RTO stack:

$$[\text{pentane loss from P010 (0.00261 lb pentane/lb EPS beads)} \times \text{the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period)} \times \text{capture efficiency (\%/100)} \times (1 - \text{RTO destruction efficiency documented during last compliant stack test (\%/100)}) \times \text{Ton/2000 lbs}] = \text{Tons OC (pentane)/rolling, 12-month period}$$
3. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the regenerative thermal oxidizer when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

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

- a. All 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance; and
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
4. The permittee shall install, maintain and operate monitoring devices and a recorder which simultaneously measure and record the pressure inside and outside the permanent total enclosure block drying room. The monitoring and recording devices shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall record and maintain the following information on a daily basis:

- a. The difference in pressure between the permanent total enclosure block drying room and the surrounding area(s); and
  - b. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.
5. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

1. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all 3-hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer does not comply with the temperature limitation specified in T&C B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).
2. The permittee shall submit quarterly pressure differential deviation (excursion) reports to the Hamilton County Department of Environmental Services that identify all periods of time during which the permanent total enclosure was not maintained at the required differential pressure specified in T&C B.4. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).
3. The permittee shall submit annual reports which specify the total OC emissions from emissions unit P010 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

0.04 lbs/hr OC (pentane) from the RTO stack

17.5 lbs/hr OC (pentane) from the RTO stack, P002 through P008 & P010, combined

- a capture efficiency of at least 100% at the block drying room
- a destruction efficiency at the RTO of at least 95% for OC emissions

Applicable Compliance Method

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of this Permit to Install Modification;
- b. The emission testing shall be conducted to demonstrate compliance with the combined allowable mass emission rates for organic compounds (pentane) and the capture efficiency and control efficiency requirements for organic compounds (pentane);
- c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates: for organic compounds, Method 25 or Method 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Hamilton County Department of Environmental Services. The test methods which must be employed to demonstrate compliance with the capture efficiency and control efficiency requirements for organic compounds are specified below;
- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Hamilton County Department of Environmental Services; and
- e. The capture efficiency shall be determined using Methods 204 through 204F, as specified in 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the USEPA's "Guidelines for Determining Capture Efficiency," dated January 9, 1995. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.)

The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10 or the approved alternative test protocol (e.g., the mass balance protocol approved on 10/25/95, or another approved alternative. 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.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Hamilton County Department of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions

unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Hamilton County Department of Environmental Services refusal to accept the results of the emission test(s).

Personnel from the Hamilton County Department of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Hamilton County Department of Environmental Services 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 Hamilton County Department of Environmental Services.

2. Emissions Limitation

0.98 TPY OC (pentane), based on a rolling, 12-month summation, from the RTO stack.

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

5. Emissions Limitations:

0.02 lb/hr and 0.07 TPY of PE/PM10 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.02 lb/hr and 0.07 TPY of SO2 from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

**Knauf Polystyrene**

**PTI Application: 14-05540**

**Issued: 6/8/2004**

**Facility ID: 1483060393**

**Emissions Unit ID: P010**

0.234 lb/hr and 1.0 TPY of NO<sub>x</sub> from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

0.03 lb/hr and 0.13 TPY of CO from the natural gas combustion of the RTO from emissions units P002, P003, P004, P005, P006, P007, P008 and P010, combined.

Applicable Compliance Method:

Compliance with these emissions limitations shall be demonstrated by multiplying the hourly emission factors provided by Knauf Polystyrene dated 2/20/97 by 8760 hours per year then dividing by 2000 pounds per ton.

6. Emissions Limitations:

Visible particulate emissions from the RTO stack shall not exceed 10 percent opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, C.3, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P011 - Block and shape EPS process - 1320 lbs/hr shape products drying and packaging FLD-01, fugitive emissions	OAC rule 3745-31-05(A)(3)	3.45 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	18.93 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P009 & P011, combined.  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month

EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitation.

**B. Operational Restrictions**

1. The maximum annual EPS bead usage rate for emissions unit P009, P010 & P011, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	1,250,000
1-2	2,500,000
1-3	3,750,000
1-4	5,000,000
1-5	6,250,000
1-6	7,500,000
1-7	8,750,000
1-8	10,000,000
1-9	11,250,000
1-10	12,500,000
1-11	13,750,000
1-12	15,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

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

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions units P009 P010, & P011, combined:
  - a. the EPS bead usage rate, in pounds, for each month;

- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from P009 & P011 (0.00261 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

fugitive emissions from building:

[pentane loss from P009 & P011 (0.00261 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

- 3. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions units P009 & P011 for the previous calendar year. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Emissions Limitations

3.45 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in FLD-01 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in FLD-01 (lb pentane/lb EPS) by the amount of pentane emitted in FLD-01 (lb pentane emissions/lb pentane).

2. Emissions Limitation

18.93 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P009 & P011, combined.

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P012 - Block and shape EPS process - 6000 lbs/hr block cutting operation CTL-01, fugitive emissions	OAC rule 3745-31-05(A)(3)	5.64 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	4.70 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 6.9 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month EPS bead usage limitations, compliance with the hourly OC emissions limitations, and compliance with the rolling, 12-month OC emissions limitation.

**B. Operational Restrictions**

1. The maximum annual EPS bead usage rate for emissions unit P012 shall not exceed 10,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	833,333
1-2	1,666,667
1-3	2,500,000
1-4	3,333,333
1-5	4,166,667
1-6	5,000,000
1-7	5,833,333
1-8	6,666,667
1-9	7,500,000
1-10	8,333,333
1-11	9,166,667
1-12	10,000,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

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

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions unit P012:
  - a. the EPS bead usage rate, in pounds, for each month;
  - b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;

- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from P012 (0.00094 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

fugitive emissions from building:

[pentane loss from P012 (0.00094 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

- 3. The permit to install for emissions units P001 through P012 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 82.2 (RTO stack and building fugitives, combined)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6732

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions unit P012 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

5.64 lbs/hr OC (pentane) as fugitive emissions from the building

### Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in CTL-01 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in CTL-01 (lb pentane/lb EPS) by the amount of pentane emitted in CTL-01 (lb pentane emissions/lb pentane).

2. Emissions Limitation

4.70 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

6.9 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P013 - Lost Foam EPS process - 30 lbs/hr batch expander EXP-04, fugitive emissions	OAC rule 3745-31-05(A)(3)	0.78 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	9.10 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P013, P014, P015 & P016, combined.  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 7.5 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month

EPS bead usage limitation, compliance with the hourly OC emissions limitation, and compliance with the rolling, 12-month OC emissions limitation.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P013, P014, P015 & P016, combined, shall not exceed 700,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	58,333
1-2	116,667
1-3	175,000
1-4	233,333
1-5	291,667
1-6	350,000
1-7	408,333
1-8	466,667
1-9	525,000
1-10	583,333
1-11	641,667
1-12	700,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions units P013, P014, P015 & P016, combined:
  - a. the EPS bead usage rate, in pounds, for each month;

- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from P013, P014, P015 & P016 (0.02599 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

fugitive emissions from building:

[pentane loss from P013, P014, P015 & P016 (0.02599 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

- 3. The permit to install for emissions units P013 through P018 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 5.50 (building fugitives)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 526

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions units P013, P014, P015 & P016 for the previous calendar year. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Emissions Limitations

0.78 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in EXP-04 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in EXP-04 (lb pentane/lb EPS) by the amount of pentane emitted in EXP-04 (lb pentane emissions/lb pentane).

2. Emissions Limitation

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9.10 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P013, P014, P015 & P016, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

7.5 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P014 - Lost Foam EPS process - 30 lbs/hr batch expander EXP-05, fugitive emissions	OAC rule 3745-31-05(A)(3)	0.78 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	9.10 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P013, P014, P015 & P016, combined.  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 7.5 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month

EPS bead usage limitation, compliance with the hourly OC emissions limitation, and compliance with the rolling, 12-month OC emissions limitation.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P013, P014, P015 & P016, combined, shall not exceed 700,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	58,333
1-2	116,667
1-3	175,000
1-4	233,333
1-5	291,667
1-6	350,000
1-7	408,333
1-8	466,667
1-9	525,000
1-10	583,333
1-11	641,667
1-12	700,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions units P013, P014, P015 & P016, combined:
  - a. the EPS bead usage rate, in pounds, for each month;

- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from P013, P014, P015 & P016 (0.02599 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

fugitive emissions from building:

[pentane loss from P013, P014, P015 & P016 (0.02599 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

- 3. The permit to install for emissions units P013 through P018 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 5.50 (building fugitives)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 526

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions units P013, P014, P015 & P016 for the previous calendar year. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Emissions Limitations

0.78 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in EXP-05 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in EXP-05 (lb pentane/lb EPS) by the amount of pentane emitted in EXP-05 (lb pentane emissions/lb pentane).

2. Emissions Limitation

9.10 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P013, P014, P015 & P016, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

7.5 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P015 - Lost Foam EPS process - 30 lbs/hr batch expander EXP-06, fugitive emissions	OAC rule 3745-31-05(A)(3)	0.78 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	9.10 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P013, P014, P015 & P016, combined.  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 7.5 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month

EPS bead usage limitation, compliance with the hourly OC emissions limitation, and compliance with the rolling, 12-month OC emissions limitation.

## B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P013, P014, P015 & P016, combined, shall not exceed 700,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	58,333
1-2	116,667
1-3	175,000
1-4	233,333
1-5	291,667
1-6	350,000
1-7	408,333
1-8	466,667
1-9	525,000
1-10	583,333
1-11	641,667
1-12	700,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions units P013, P014, P015 & P016, combined:
  - a. the EPS bead usage rate, in pounds, for each month;

- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from P013, P014, P015 & P016 (0.02599 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

fugitive emissions from building:

[pentane loss from P013, P014, P015 & P016 (0.02599 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

- 3. The permit to install for emissions units P013 through P018 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 5.50 (building fugitives)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 526

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions units P013, P014, P015 & P016 for the previous calendar year. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Emissions Limitations

0.78 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in EXP-06 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in EXP-06 (lb pentane/lb EPS) by the amount of pentane emitted in EXP-06 (lb pentane emissions/lb pentane).

2. Emissions Limitation

9.10 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P013, P014, P015 & P016, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

7.5 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P016 - Lost Foam EPS process - 30 lbs/hr batch expander EXP-07, fugitive emissions	OAC rule 3745-31-05(A)(3)	0.78 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	9.10 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P013, P014, P015 & P016, combined.  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 7.5 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month

EPS bead usage limitation, compliance with the hourly OC emissions limitation, and compliance with the rolling, 12-month OC emissions limitation.

**B. Operational Restrictions**

1. The maximum annual EPS bead usage rate for emissions units P013, P014, P015 & P016, combined, shall not exceed 700,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	58,333
1-2	116,667
1-3	175,000
1-4	233,333
1-5	291,667
1-6	350,000
1-7	408,333
1-8	466,667
1-9	525,000
1-10	583,333
1-11	641,667
1-12	700,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

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

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions units P013, P014, P015 & P016, combined:
  - a. the EPS bead usage rate, in pounds, for each month;

- b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;
- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:  
  
fugitive emissions from building:  
  
[pentane loss from P013, P014, P015 & P016 (0.02599 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x ton/2000 lbs] = Tons OC (pentane)/month; and,
- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:  
  
fugitive emissions from building:  
  
[pentane loss from P013, P014, P015 & P016 (0.02599 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

- 3. The permit to install for emissions units P013 through P018 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 5.50 (building fugitives)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 526

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions units P013, P014, P015 & P016 for the previous calendar year. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Emissions Limitations

0.78 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in EXP-07 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in EXP-07 (lb pentane/lb EPS) by the amount of pentane emitted in EXP-07 (lb pentane emissions/lb pentane).

2. Emissions Limitation

9.10 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building, emissions units P013, P014, P015 & P016, combined

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

7.5 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P017 - Lost Foam EPS process - 120 lbs/hr batch storage (aging) bags SB-31 through SB-40, fugitive emissions	OAC rule 3745-31-05(A)(3)	1.74 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	5.07 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 7.5 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month EPS bead usage limitation, compliance with the hourly OC emissions limitation, and compliance with the rolling, 12-month OC emissions limitation.

**B. Operational Restrictions**

1. The maximum annual EPS bead usage rate for emissions unit P017 shall not exceed 700,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	58,333
1-2	116,667
1-3	175,000
1-4	233,333
1-5	291,667
1-6	350,000
1-7	408,333
1-8	466,667
1-9	525,000
1-10	583,333
1-11	641,667
1-12	700,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

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

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions unit P017:
  - a. the EPS bead usage rate, in pounds, for each month;
  - b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;

- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from P017 (0.01448 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

fugitive emissions from building:

[pentane loss from P017 (0.01448 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

- 3. The permit to install for emissions units P013 through P018 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 5.50 (building fugitives)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 526

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions unit P017 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

1.74 lbs/hr OC (pentane) as fugitive emissions from the building

### Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in SB-31 through SB-40 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in SB-31 through SB-40 (lb pentane/lb EPS) by the amount of pentane emitted in SB-31 through SB-40 (lb pentane emissions/lb pentane).

2. Emissions Limitation

5.07 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

7.5 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P018 - Lost Foam EPS process - 120 lbs/hr molding presses LFP-01 through LFP-06, fugitive emissions	OAC rule 3745-31-05(A)(3)	0.65 lbs/hr OC (pentane) as fugitive emissions from the building  See T&Cs A.2.a. and A.2.b.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and the Emission Offset Requirements	1.89 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building  See T&C B.1.

**2. Additional Terms and Conditions**

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 7.5 % by weight.
- 2.b The hourly emissions limitations outlined in T&C A.1. are based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the pentane content limitation of the EPS beads, compliance with the rolling, 12-month EPS bead usage limitation, compliance with the hourly OC emissions limitation, and compliance with the rolling, 12-month OC emissions limitation.

**B. Operational Restrictions**

1. The maximum annual EPS bead usage rate for emissions units P018 shall not exceed 700,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

To ensure enforceability during the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the EPS bead usage levels specified in the following table:

<u>Month</u>	<u>Maximum Allowable Cumulative EPS bead usage (pounds)</u>
1	58,333
1-2	116,667
1-3	175,000
1-4	233,333
1-5	291,667
1-6	350,000
1-7	408,333
1-8	466,667
1-9	525,000
1-10	583,333
1-11	641,667
1-12	700,000

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the EPS bead usage rate.

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

1. The permittee shall maintain monthly records of the chemical analyses of the EPS beads provided by the supplier for each lot, shipment or box of EPS beads delivered to the facility. This analysis shall include the percent (%) by weight pentane in the EPS beads.
2. The permittee shall maintain monthly records of the following information for emissions unit P018:
  - a. the EPS bead usage rate, in pounds, for each month;
  - b. during the first 12 calendar months following the issuance of this permit, the cumulative EPS bead usage rate, in pounds, for each month. This shall be a cumulative total of all months since the commencement of operations;

- c. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the EPS bead usage rate, in pounds. This shall include the information for the current month and the preceding eleven months;
- d. during the first 12 calendar months following the issuance of this permit, the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from P018 (0.00541 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.a. (lbs EPS beads/month) x ton/2000 lbs] = Tons OC (pentane)/month; and,

- e. beginning after the first 12 calendar months following the issuance of this permit, the updated rolling, 12-month summation of the actual OC (pentane) emissions, in tons for each month. This shall include the information for the current month and the preceding eleven months:

fugitive emissions from building:

[pentane loss from P018 (0.00541 lb pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.c. (lbs EPS beads/rolling, 12-month period) x ton/2000 lbs] = Tons OC (pentane)/rolling, 12-month period

- 3. The permit to install for emissions units P013 through P018 was evaluated based on the actual materials and the design parameters of the emissions units' 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 for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Ground-Level Concentration (MAGLC).

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: pentane

TLV (ug/m3): 1,770,000

Maximum Hourly Emission Rate (lbs/hr): 5.50 (building fugitives)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 526

MAGLC (ug/m3): 42,143

Physical changes to or in the method of operation of the emissions units after installation or modification could affect the parameters used to determine whether or not the "Air Toxics 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 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 with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied with the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is(are) defined as a modification under other provisions of the modification definition [other than (VV)(1)(a)(ii)], then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will satisfy the "Air Toxic Policy":

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. when the 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 deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify any monthly record showing that the pentane content of the EPS beads, exceeded the limitation in T&C A.2.a. The deviation report shall include a copy of such record.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services which identify all exceedances of the rolling, 12-month EPS bead usage limitation and, for the first 12 calendar months following the commencement of operations, all exceedances of the maximum allowable cumulative EPS bead usage levels in T&C B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emissions limit occurred. The deviation report shall include a copy of such records.

If no deviations occurred during the reporting period, the permittee shall state so in the report. The permittee shall submit the reports by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

3. The permittee shall submit annual reports which specify the total OC emissions from emissions unit P018 for the previous calendar year. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Emissions Limitations

0.65 lbs/hr OC (pentane) as fugitive emissions from the building

Applicable Compliance Method

Compliance with the lbs/hr OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in LFP-01 through LFP-06 (lbs EPS/hr) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb pentane emissions/lb EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in LFP-01 through LFP-06 (lb pentane/lb EPS) by the amount of pentane emitted in LFP-01 through LFP-06 (lb pentane emissions/lb pentane).

2. Emissions Limitation

1.89 TPY OC (pentane), based on a rolling, 12-month summation, as fugitive emissions from the building

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the recordkeeping requirement in T&C C.2.e.

3. Emissions Limitation

7.5 % pentane by weight in the EPS beads

Applicable Compliance Method

Compliance with the pentane content limitation in T&C A.2.a. shall be demonstrated by the recordkeeping requirement in T&C C.1.

4. Compliance with the production limitation in T&C B.1. shall be demonstrated by the record keeping requirement in T&C C.2.

**F. Miscellaneous Requirements**

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.