



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL MODIFICATION
WARREN COUNTY**

CERTIFIED MAIL

Street Address:

122 S. Front Street

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:
Lazarus Gov. Center
P.O. Box 1049

Application No: 14-05540

Fac ID: 1483060393

DATE: 10/12/2006

Knauf Polystyrene
Chris Mahin
One Knauf Drive
Shelbyville, IN 461760000

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

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

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

Sincerely,

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

CC: USEPA

HCDES

XXXX



**Permit To Install
Terms and Conditions**

**Issue Date: 10/12/2006
Effective Date: 10/12/2006**

FINAL ADMINISTRATIVE MODIFICATION OF PERMIT TO INSTALL 14-05540

Application Number: 14-05540
Facility ID: 1483060393
Permit Fee: **\$600**
Name of Facility: Knauf Polystyrene
Person to Contact: Chris Mahin
Address: One Knauf Drive
Shelbyville, IN 461760000

Location of proposed air contaminant source(s) [emissions unit(s)]:

**2725 Henkle Drive
Lebanon, Ohio**

Description of proposed emissions unit(s):

Administrative Modification to PTI 14-05540 issued 6/8/2004 to increase the allowable pentane content in the Lost Foam process; offset with decreases in short-term and annual EPS usage limits.

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

Knauf Polystyrene
PTI Application: 14-05540
Modification Issued: 10/12/2006

Facility ID: 148306039

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

Knauf Polystyrene
PTI Application: 14-05540
Modification Issued: 10/12/2006

Facility ID: 148306039

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)

Knauf Polystyrene
PTI Application: 14-05540
Modification Issued: 10/12/2006

Facility ID: 148306039

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.

Knauf Polystyrene
PTI Application: 14-05540
Modification Issued: 10/12/2006

Facility ID: 148306039

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.

Knauf Polystyrene
PTI Application: 14-05540
Modification Issued: 10/12/2006

Facility ID: 148306039

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

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

Modification Issued: 10/12/2006

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. Applicable Emissions Limitations and/or Control Requirements**

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

Operations, Property, and/or Equipment - (P001) - Block and shape EPS process - 9000 lbs/hour opening raw material boxes (EPS beads) OPBOX-01, fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	<p>Fugitive organic compound (OC) in the form of pentane emissions from the building emitted by this emissions unit shall not exceed 6.21 lbs/hour.</p> <p>See Section A.2.a and A.2.b.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).</p>
OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements	<p>Fugitive emissions from the building emitted by this emissions unit shall not exceed 5.18 tons per year (TPY) of OC in the form of pentane emissions based on a rolling, 12-month summation.</p> <p>See Section B.1.</p>

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 Section 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

Emissions Unit ID: **P001**

Modification Issued: 10/12/2006

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

Modification Issued: 10/12/2006

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.

The permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

C. Monitoring and/or Record keeping 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 P001:
 - a. the EPS bead usage rate, in pounds, for each month;
 - b. 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;
 - c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

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

- d. 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:

Knauf Polystyrene

DTI Application: 14-05510

Facility ID: 148306039

Emissions Unit ID: **P001**

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

Modification Issued: 10/12/2006

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

Modification Issued: 10/12/2006

proposed in the application and modeled; and

- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

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

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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 for emissions unit P001 in Section 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).

Modification Issued: 10/12/2006

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/hour of OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method:

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

2. Emissions Limitation:

5.18 TPY of 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) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.

3. Emissions Limitation:

6.9 % pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

4. Compliance with the production limitation in Section B.1 shall be demonstrated by the

Modification Issued: 10/12/2006

Emissions Unit ID: **P001**

record keeping requirement in Section C.2.

Modification Issued: 10/12/2006

F. Miscellaneous Requirements

1. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.
2. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.

Modification Issued: 10/12/2006

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P002) - Block and shape EPS process - 7000 lbs/hour batch expander EXP-01 and associated fluid bed drying with Regenerative Thermal Oxidizer (RTO-01) fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
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Modification Issued: 10/12/2006

OAC rule 3745-31-05(A)(3)	<p>From the Regenerative Thermal Oxidizer (RTO) stack, the organic compound (OC) emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 7.61 lbs/hour and the combined OC emissions emitted by emissions units P002 through P008 and P010 shall not exceed 17.5 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>Particulate matter emissions (PE) and particulate matter less than 10 microns in diameter (PM10) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Nitrogen oxides (NO_x) emissions shall not exceed 0.234 lb/hour and 1.0 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Carbon monoxide (CO) emissions shall not exceed 0.03 lb/hour and 0.13 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</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>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 15.06 lbs/hour.</p>
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Emissions Unit ID: P002

<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the RTO stack, the combined OC emissions in the form of pentane emissions emitted by emissions units P002, P003, and P004 shall not exceed 8.16 TPY, based on a rolling, 12-month summation.</p> <p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P002, P003 and P004 shall not exceed 16.14 TPY, based on a rolling, 12-month summation.</p> <p>See Sections 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 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 Section 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 limitation, compliance with the hourly OC emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

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

The permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

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 Record keeping 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 P002, P003 and P004, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. 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;
- c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

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

fugitive emissions from building:

Modification Issued: 10/12/2006

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

- d. 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 emissions units P002, P003 and P004 (0.02391 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of 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 of (pentane)/rolling, 12-month period; and

fugitive emissions from building:

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

Modification Issued: 10/12/2006

- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

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

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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

Emissions Unit ID: **P002**

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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 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 Section 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).

Modification Issued: 10/12/2006

4. The permittee shall submit annual reports which specify the total OC emissions from emissions units P002, P003 and 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/hour of OC (pentane) from the RTO stack and
17.5 lbs/hour of OC (pentane) from the RTO stack, emissions units P002 through P008
and 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

Emissions Unit ID: **P002**

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/hour of OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method:

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

Modification Issued: 10/12/2006

3. Emissions Limitation:

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

Applicable Compliance Method:

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

Modification Issued: 10/12/2006

4. Emissions Limitation:

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

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section 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 Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

7. Emissions Limitations:

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

0.03 lb/hour 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

Knauf Polystyrene

DTL Application: 11 05510

Facility ID: 148306039

Emissions Unit ID: P002

hourly emission factors provided by Knauf Polystyrene dated 2/20/97 by 8760 hours per year then dividing by 2000 pounds per ton.

Modification Issued: 10/12/2006

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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

Modification Issued: 10/12/2006

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P003) - Block and shape EPS process - 1600 lbs/hour continuous expander EXP-02 and associated fluid bed drying with Regenerative Thermal Oxidizer (RTO-01) fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
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Modification Issued: 10/12/2006

OAC rule 3745-31-05(A)(3)	<p>From the Regenerative Thermal Oxidizer (RTO) stack, the organic compound (OC) in the form of pentane emissions emitted by this emissions unit shall not exceed 1.74 lbs/hour and the combined OC emissions emitted by P002 thorough P008 and P010 shall not exceed 17.5 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>Particulate matter emissions (PE) and particulate matter less than 10 microns in diameter (PM10) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Nitrogen oxides (NO_x) emissions shall not exceed 0.234 lb/hour and 1.0 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Carbon monoxide (CO) emissions shall not exceed 0.03 lb/hour and 0.13 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</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>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 3.44 lbs/hour.</p>
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Modification Issued: 10/12/2006

<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the RTO stack, the combined OC emissions in the form of pentane emissions emitted by emissions units P002, P003, and P004 shall not exceed 8.16 TPY, based on a rolling, 12-month summation.</p> <p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P002, P003 and P004 shall not exceed 16.14 TPY, based on a rolling, 12-month summation.</p> <p>See Sections 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 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 Section 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 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 P002, P003 and P004, combined shall not exceed 15,000,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

The permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

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 Record keeping 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 P002, P003 and P004, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. 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;
- c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

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

fugitive emissions from building:

Modification Issued: 10/12/2006

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

- d. 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 emissions units P002, P003 and P004 (0.02391 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of 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 of OC (pentane)/rolling, 12-month period; and

fugitive emissions from building:

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

Modification Issued: 10/12/2006

- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

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

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section A.2.a. The deviation report shall include a copy of such record.

Emissions Unit ID: P003

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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission 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 Section B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the

Modification Issued: 10/12/2006

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 and 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/hour of OC (pentane) from the RTO stack and
17.5 lbs/hour of OC (pentane) from the RTO stack, emissions units P002 through P008 and 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

Modification Issued: 10/12/2006

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/hour of OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method:

Compliance with the lbs/hour OC (pentane) emissions limitation shall be demonstrated

Knauf Polystyrene

PTI Application: 14-05540

Facility ID: 148306039

Emissions Unit ID: **P003**

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

3. Emissions Limitation:

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

Modification Issued: 10/12/2006

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the record keeping requirement in Section 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 and P004 combined.

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the record keeping requirement in Section 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 Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

7. Emissions Limitations:

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

0.03 lb/hour 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.

Modification Issued: 10/12/2006

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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P004) - Block and shape EPS process - 400 lbs/hour continuous expander EXP-03 and associated fluid bed drying with Regenerative Thermal Oxidizer (RTO-01) fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
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Modification Issued: 10/12/2006

OAC rule 3745-31-05(A)(3)	<p>From the Regenerative Thermal Oxidizer (RTO) stack, the organic compound (OC) in the form of pentane emissions emitted by this emissions unit shall not exceed 0.44 lb/hour and the combined OC emissions emitted by emissions units P002 through P008 and P010 shall not exceed 17.5 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>Particulate matter emissions (PE) and particulate matter less than 10 microns in diameter (PM10) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Nitrogen oxides (NO_x) emissions shall not exceed 0.234 lb/hour and 1.0 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Carbon monoxide (CO) emissions shall not exceed 0.03 lb/hour and 0.13 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</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>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 0.86 lb/hour.</p>
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Modification Issued: 10/12/2006

<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the RTO stack, the combined OC emissions in the form of pentane emissions emitted by emissions units P002, P003, and P004 shall not exceed 8.16 TPY, based on a rolling, 12-month summation.</p> <p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P002, P003 and P004 shall not exceed 16.14 TPY, based on a rolling, 12-month summation.</p> <p>See Sections 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 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 Section 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 limitation, compliance with the hourly OC emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

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

The permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

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 Record keeping 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 P002, P003 and P004, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. 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;
- c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

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

fugitive emissions from building:

Modification Issued: 10/12/2006

[pentane loss from emissions units P002, P003 and P004 (0.02391 lb of pentane/lb of 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 of (pentane)/month; and

- d. 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 emissions units P002, P003 and P004 (0.02391 lb of pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of 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 of (pentane)/rolling, 12-month period fugitive emissions from building; and

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

Modification Issued: 10/12/2006

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/hour): 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 for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be

Modification Issued: 10/12/2006

required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, then the permittee shall obtain a final permit to install prior to the change.

Modification Issued: 10/12/2006

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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).

Emissions Unit ID: **P004**

3. 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 Section 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).
4. The permittee shall submit annual reports which specify the total OC emissions from emissions units P002, P003 and 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/hour of OC (pentane) from the RTO stack and
17.5 lbs/hour of OC (pentane) from the RTO stack, emissions units P002 through P008
and 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;

Modification Issued: 10/12/2006

- 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

Emissions Unit ID: **P004**

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/hour of OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method

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

3. Emissions Limitation:

Knauf Polystyrene

DTI Application: 11-05510

Facility ID: 148306039

Emissions Unit ID: P004

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

Modification Issued: 10/12/2006

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.e.

4. Emissions Limitation:

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

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section 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 Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

7. Emissions Limitations:

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

0.03 lb/hour 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.

Knauf Polystyrene

DTL Application: 14-05540

Facility ID: 148306039

Emissions Unit ID: P004

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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P005) - Block and shape EPS process - 8600 lbs/hour batch storage (aging) bags SB-01 through SB-16 with Regenerative Thermal Oxidizer (RTO-01) fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
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Modification Issued: 10/12/2006

OAC rule 3745-31-05(A)(3)	<p>From the Regenerative Thermal Oxidizer (RTO), the organic compound (OC) in the form of pentane emissions emitted by this emissions unit shall not exceed 5.21 lbs/hour stack and the combined OC emitted by emissions units P002 through P008 and P010 shall not exceed 17.5 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>Particulate matter emissions (PE) and particulate matter less than 10 microns in diameter (PM10) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Nitrogen oxides (NO_x) emissions shall not exceed 0.234 lb/hour and 1.0 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Carbon monoxide (CO) emissions shall not exceed 0.03 lb/hour and 0.13 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</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>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 10.31 lbs/hour.</p>
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Modification Issued: 10/12/2006

<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the RTO stack, the combined OC emissions in the form of pentane emissions emitted by emissions units P005 and P006 shall not exceed 4.55 TPY, based on a rolling, 12-month summation.</p> <p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P005 and P006 shall not exceed 8.99 TPY, based on a rolling, 12-month summation.</p> <p>See Sections 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 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 Section 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 limitation, compliance with the hourly OC emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

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

The Permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

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 Record keeping 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 P005 and P006, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. 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;
- c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

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

fugitive emissions from building:

Emissions Unit ID: **P005**

Modification Issued: 10/12/2006

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

Modification Issued: 10/12/2006

- d. 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 emissions units P005 and P006 (0.01332 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of 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 of (pentane)/rolling, 12-month period; and

fugitive emissions from building:

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

Emissions Unit ID: **P005**

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/hour): 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

Modification Issued: 10/12/2006

diameter, etc.).

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

Modification Issued: 10/12/2006

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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).

Emissions Unit ID: **P005**

3. 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 Section 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).
4. The permittee shall submit annual reports which specify the total OC emissions from emissions units P005 and 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/hour OC (pentane) from the RTO stack and
17.5 lbs/hour OC (pentane) from the RTO stack, emissions units P002 through P008
and 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;

Modification Issued: 10/12/2006

- 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

Emissions Unit ID: **P005**

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/hour OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method:

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

3. Emissions Limitation:

Knauf Polystyrene

DTI Application: 11-05510

Facility ID: 148306039

Emissions Unit ID: P005

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

Modification Issued: 10/12/2006

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

4. Emissions Limitation:

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

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

5. Emissions Limitation:

6.9 % pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

7. Emissions Limitations:

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

0.03 lb/hour 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.

Modification Issued: 10/12/2006

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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P006) - Block and shape EPS process - 1320 lbs/hour shape storage (aging) bags SB-17 through SB-30 with Regenerative Thermal Oxidizer (RTO-01) fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
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Modification Issued: 10/12/2006

OAC rule 3745-31-05(A)(3)	<p>From the Regenerative Thermal Oxidizer (RTO) stack, the organic compound (OC) in the form of pentane emissions emitted by this emissions unit shall not exceed 0.80 lb/hour and the combined OC emissions emitted by emissions units P002 through P008 and P010 shall not exceed 17.5 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>Particulate matter emissions (PE) and particulate matter less than 10 microns in diameter (PM10) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Nitrogen oxides (NO_x) emissions shall not exceed 0.234 lb/hour and 1.0 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Carbon monoxide (CO) emissions shall not exceed 0.03 lb/hour and 0.13 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</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>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 1.58 lbs/hour.</p>
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Modification Issued: 10/12/2006

<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the RTO stack, the combined OC emissions in the form of pentane emissions emitted by emissions units P005 and P006 shall not exceed 4.55 TPY, based on a rolling, 12-month summation.</p> <p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P005 and P006 shall not exceed 8.99 TPY, based on a rolling, 12-month summation.</p> <p>See Sections 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 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 Section 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 limitation, compliance with the hourly OC emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

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

The Permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

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 Record keeping 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 P005 and P006, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. 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;
- c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

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

fugitive emissions from building:

Modification Issued: 10/12/2006

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

Modification Issued: 10/12/2006

- d. 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 emissions units P005 and P006 (0.01332 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of 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 of (pentane)/rolling, 12-month period; and

fugitive emissions from building:

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

Emissions Unit ID: **P006**

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/hour): 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

Modification Issued: 10/12/2006

diameter, etc.).

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

Modification Issued: 10/12/2006

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 quarterly deviation (excursion) reports to the Hamilton

Knauf Polystyrene**DTL Application: 14-05510****Facility ID: 148306039****Emissions Unit ID: P006**

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 Section B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the

Modification Issued: 10/12/2006

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).

4. The permittee shall submit annual reports which specify the total OC emissions from emissions units P005 and 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/hour OC (pentane) from the RTO stack and
17.5 lbs/hour OC (pentane) from the RTO stack, emissions units P002 through P008
and 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

Modification Issued: 10/12/2006

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/hour OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method:

Compliance with the lbs/hour OC (pentane) emissions limitation shall be demonstrated

Knauf Polystyrene

PTI Application: 14-05540

Facility ID: 148306039

Emissions Unit ID: **P006**

by multiplying the actual EPS usage rate in SB-17 through SB-30 (lbs of EPS/hour) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb of pentane emissions/lb of 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 of pentane/lb of EPS) by the amount of pentane emitted in SB-17 through SB-30 (lb of pentane emissions/lb of pentane).

3. Emissions Limitation:

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

Modification Issued: 10/12/2006

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

4. Emissions Limitation:

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

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

5. Emissions Limitation:

6.9 % pentane by weight in the EPS beads.

Applicable Compliance Method

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

7. Emissions Limitations:

0.02 lb/hour 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/hour 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/hour 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/hour 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.

Modification Issued: 10/12/2006

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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P007) - Block and shape EPS process - 6000 lbs/hour vacuum block mold press VAC-01 with Regenerative Thermal Oxidizer (RTO-01) fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
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Modification Issued: 10/12/2006

OAC rule 3745-31-05(A)(3)	<p>From the Regenerative Thermal Oxidizer (RTO) stack, the organic compound (OC) in the form of pentane emissions emitted by this emissions unit shall not exceed 1.36 lbs/hour and the combined OC emissions emitted by emissions units P002 through P008 and P010 shall not exceed 17.5 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>Particulate matter emissions (PE) and particulate matter less than 10 microns in diameter (PM10) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Nitrogen oxides (NO_x) emissions shall not exceed 0.234 lb/hour and 1.0 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Carbon monoxide (CO) emissions shall not exceed 0.03 lb/hour and 0.13 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</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>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 2.69 lbs/hour.</p>
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Modification Issued: 10/12/2006

<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the RTO stack, the combined OC emissions in the form of pentane emissions emitted by emissions units P007 and P008 shall not exceed 1.70 TPY, based on a rolling, 12-month summation.</p> <p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P007 and P008 shall not exceed 3.36 TPY, based on a rolling, 12-month summation.</p> <p>See Sections 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 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 Section 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 limitation, compliance with the hourly OC emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

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

The Permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

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 Record keeping 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 P007 and P008, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. 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;
- c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

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

Modification Issued: 10/12/2006

fugitive emissions from building:

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

- d. 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 emissions units P007 and P008 (0.00497 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of 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 of (pentane)/rolling, 12-month period; and

fugitive emissions from building:

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

Emissions Unit ID: **P007**

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/hour): 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;

Modification Issued: 10/12/2006

- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

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

Modification Issued: 10/12/2006

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 quarterly deviation (excursion) reports to the Hamilton

Knauf Polystyrene**DTL Application: 14-05510****Facility ID: 148306039****Emissions Unit ID: P007**

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 Section B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the

Modification Issued: 10/12/2006

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).

4. The permittee shall submit annual reports which specify the total OC emissions from emissions units P007 and 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/hour OC (pentane) from the RTO stack and
17.5 lbs/hour OC (pentane) from the RTO stack, emissions units P002 through P008 and 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

Modification Issued: 10/12/2006

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/hour of OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method:

Compliance with the lbs/hour OC (pentane) emissions limitation shall be demonstrated

Knauf Polystyrene

PTI Application: 14-05540

Facility ID: 148306039

Emissions Unit ID: **P007**

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

3. Emissions Limitation:

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

Modification Issued: 10/12/2006

Applicable Compliance Method

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

4. Emissions Limitation:

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

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

5. Emissions Limitation:

6.9 % pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

7. Emissions Limitations:

0.02 lb/hour 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/hour 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/hour 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/hour 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.

Modification Issued: 10/12/2006

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 Limitation:

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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P008) - Block and shape EPS process - 1320 lbs/hour shape mold presses SHP-01 through SHP-06 with Regenerative Thermal Oxidizer (RTO-01) fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
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Modification Issued: 10/12/2006

OAC rule 3745-31-05(A)(3)	<p>From the Regenerative Thermal Oxidizer (RTO) stack, the organic compound (OC) in the form of pentane emissions emitted by this emissions shall not exceed 0.30 lb/hour and the combined OC emissions emitted by emissions units P002 thorough P008 and P010 shall not exceed 17.5 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>Particulate matter emissions (PE) and particulate matter less than 10 microns in diameter (PM10) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Nitrogen oxides (NO_x) emissions shall not exceed 0.234 lb/hour and 1.0 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Carbon monoxide (CO) emissions shall not exceed 0.03 lb/hour and 0.13 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</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>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 0.59 lb/hour.</p>
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Modification Issued: 10/12/2006

<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the RTO stack, the combined OC emissions in the form of pentane emissions emitted by emissions units P007 and P008 shall not exceed 1.70 TPY, based on a rolling, 12-month summation.</p> <p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P007 and P008 shall not exceed 3.36 TPY, based on a rolling, 12-month summation.</p> <p>See Sections 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 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 Section 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 limitation, compliance with the hourly OC emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

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

The Permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

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 Record keeping 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 P007 and P008, combined:
 - a. the EPS bead usage rate, in pounds, for each month;
 - b. 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;
 - c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

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

Modification Issued: 10/12/2006

fugitive emissions from building:

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

Modification Issued: 10/12/2006

- d. 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 emissions units P007 and P008 (0.00497 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of 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 of (pentane)/rolling, 12-month period; and

fugitive emissions from building:

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

Emissions Unit ID: **P008**

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/hour): 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.,

Modification Issued: 10/12/2006

increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

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

Modification Issued: 10/12/2006

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 quarterly deviation (excursion) reports to the Hamilton

Knauf Polystyrene**DTL Application: 14-05510****Facility ID: 148306039****Emissions Unit ID: P008**

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 Section B.2. The deviation report shall include a copy of such records. If no deviations occurred during the reporting period, the

Modification Issued: 10/12/2006

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).

4. The permittee shall submit annual reports which specify the total OC emissions from emissions units P007 and 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/hour OC (pentane) from the RTO stack and
17.5 lbs/hour OC (pentane) from the RTO stack, emissions units P002 through P008 and 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

Modification Issued: 10/12/2006

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 lb/hour OC (pentane) as fugitive emissions from the building:

Applicable Compliance Method:

Knauf Polystyrene

PTI Application: 14-05540

Facility ID: 148306039

Emissions Unit ID: **P008**

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

3. Emissions Limitation:

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

Modification Issued: 10/12/2006

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

4. Emissions Limitation:

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

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

5. Emissions Limitation:

6.9 % pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

7. Emissions Limitations:

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

0.03 lb/hour 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.

Modification Issued: 10/12/2006

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 Limitation:

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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P009) - Block and shape EPS process - 5700 lbs/hour drying floor DRFL-01, fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	<p>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 14.88 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).</p>
OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements	<p>From the building, the fugitive combined OC emissions in the form of pentane emissions emitted by emissions units P009 and P011 shall not exceed 18.93 TPY, based on a rolling, 12-month summation.</p> <p>See Section B.1.</p>

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 Section 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

Emissions Unit ID: **P009**

Modification Issued: 10/12/2006

OC emission limitations, and compliance with the rolling, 12-month OC emission limitation.

Modification Issued: 10/12/2006

B. Operational Restrictions

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

The Permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

C. Monitoring and/or Record keeping 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, and P011, combined:
 - a. the EPS bead usage rate, in pounds, for each month;
 - b. 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;
 - c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

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

- d. 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 emissions units P009 and P011 (0.00261 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/rolling, 12-month period)] = Tons of (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/hour): 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;

Modification Issued: 10/12/2006

- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

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

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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

Emissions Unit ID: P009

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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 and P011 for the previous calendar year. These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emissions Limitation:

14.88 lbs/hour of OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method

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

2. Emissions Limitation:

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

Modification Issued: 10/12/2006

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

3. Emissions Limitation:

6.9 % pentane by weight in the EPS beads.

Applicable Compliance Method

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

4. Compliance with the production limitation in Section B.1 shall be demonstrated by the record keeping requirement in Section 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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

Modification Issued: 10/12/2006

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P010) - Block and shape EPS process - 300 lbs/hour block drying room DRRM-01 with Total Enclosure and Regenerative Thermal Oxidizer (RTO-01)

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
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<p>OAC rule 3745-31-05(A)(3)</p>	<p>From the Regenerative Thermal Oxidizer (RTO) stack, the organic compound (OC) in the form of pentane emissions emitted by this emissions unit shall not exceed 0.04 lb/hour and the combined OC emissions emitted by emissions units P002 through P008 and P010 shall not exceed 17.5 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>Particulate matter emissions (PE) and particulate matter less than 10 microns in diameter (PM10) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.02 lb/hour and 0.07 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Nitrogen oxides (NO_x) emissions shall not exceed 0.234 lb/hour and 1.0 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</p> <p>Carbon monoxide (CO) emissions shall not exceed 0.03 lb/hour and 0.13 TPY from the natural gas combustion of the RTO serving emissions units P002, P003, P004, P005, P006, P007, P008 and P010.</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>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment review, and the Emission Offset Requirements</p>	<p>From the RTO stack, the OC emissions in the form of pentane emissions emitted by emissions unit shall not exceed 0.98 TPY, based on a rolling, 12-month summation.</p> <p>See Sections B.1 and B.2.</p>

Modification Issued: 10/12/2006

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 Section 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 limitation, compliance with the hourly OC emission limitations, and compliance with the rolling, 12-month OC emission limitations.

B. Operational Restrictions

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

The permittee has existing EPS bead usage records, therefore, does not need to be restricted monthly during the first year after issuance of this permit.

Modification Issued: 10/12/2006

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 Record keeping 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, and P011, combined:
 - a. the EPS bead usage rate, in pounds, for each month;
 - b. 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;
 - c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

emissions from RTO stack:

[pentane loss from emissions unit P010 (0.00261 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.a (lbs of EPS beads/month) x capture efficiency (%/100) x (1 - RTO destruction efficiency documented during last compliant stack test (%)/100) x Ton/2000 lbs] = Tons of (pentane)/month; and
 - d. 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 emissions unit P010 (0.00261 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of 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 of (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.

Modification Issued: 10/12/2006

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/hour): 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 for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, then the permittee shall obtain a final permit to install prior to the change.

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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).

Modification Issued: 10/12/2006

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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 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 Section 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).
4. 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 Section B.3. 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).
5. 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 lb/hour OC (pentane) from the RTO stack and 17.5 lbs/hour OC (pentane) from the RTO stack, emissions units P002 through P008 and 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

Modification Issued: 10/12/2006

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 of 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) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

Knauf Polystyrene

DTL Application: 14-05510

Facility ID: 148306039

Emissions Unit ID: P010

3. Emissions Limitation:

6.9 % pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

5. Emissions Limitations:

0.02 lb/hour 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/hour 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/hour 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/hour 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 Limitation:

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 Unit ID: **P010**

Modification Issued: 10/12/2006

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).

Modification Issued: 10/12/2006

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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

Modification Issued: 10/12/2006

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. Applicable Emissions Limitations and/or Control Requirements**

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

Operations, Property, and/or Equipment - (P011) - Block and shape EPS process - 1320 lbs/hour shape products drying and packaging FLD-01, fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	<p>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 3.45 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).</p>
<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the building, the fugitive combined OC emissions in the form of pentane emissions emitted by emissions units P009 and P011 shall not exceed 18.93 TPY, based on a rolling, 12-month summation.</p> <p>See Section B.1.</p>

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 Section 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

Knauf Polystyrene

DTL Application: 11-05510

Facility ID: 148306039

Emissions Unit ID: **P011**

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.

Modification Issued: 10/12/2006

B. Operational Restrictions

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

The permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

C. Monitoring and/or Record keeping 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 and P011, combined:
 - a. the EPS bead usage rate, in pounds, for each month;
 - b. 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;
 - c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

[pentane loss from emissions units P009 and P011 (0.00261 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/month) x Ton/2000 lbs] = Tons of (pentane)/month; and

- d. 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:

Modification Issued: 10/12/2006

[pentane loss from emissions units P009 and P011 (0.00261 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/rolling, 12-month period) x Ton/2000 lbs] = Tons of (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/hour): 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 for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, then the permittee shall obtain a final permit to install prior to the change.

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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

Modification Issued: 10/12/2006

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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 and P011 for the previous calendar year. These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emissions Limitation:

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

Applicable Compliance Method:

Compliance with the lbs/hour OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in FLD-01 (lbs of EPS/hour) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb of pentane emissions/lb of EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in FLD-01 (lb of pentane/lb of EPS) by the amount of pentane emitted in FLD-01 (lb of pentane emissions/lb of 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 and P011, combined.

Knauf Polystyrene

DTL Application: 14-05540

Facility ID: 148306039

Emissions Unit ID: P011

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

3. Emissions Limitation:

6.9 % pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

4. Compliance with the production limitation in Section B.1 shall be demonstrated by the record keeping requirement in Section 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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

Modification Issued: 10/12/2006

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. Applicable Emissions Limitations and/or Control Requirements**

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

Operations, Property, and/or Equipment - (P012) - Block and shape EPS process - 6000 lbs/hour block cutting operation CTL-01, fugitive emissions

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	<p>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 5.64 lbs/hour.</p> <p>See Sections A.2.a and A.2.b.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).</p>
<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P009 and P011 shall not exceed 4.70 TPY, based on a rolling, 12-month summation.</p> <p>See Section B.1.</p>

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 Section 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

Modification Issued: 10/12/2006

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 emission limitations, and compliance with the rolling, 12-month OC emission limitation.

Modification Issued: 10/12/2006

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.

The permittee has existing EPS bead usage records, therefore, does not need to be restricted on a monthly basis during the first year after issuance of this permit.

C. Monitoring and/or Record keeping 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. 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;
 - c. the actual OC (pentane) emissions, in tons for each month, shall be a summation of the following:

fugitive emissions from building:

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

- d. 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:

Emissions Unit ID: **P012**

[pentane loss from emissions unit P012 (0.00094 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/rolling, 12-month period) x Ton/2000 lbs] = Tons of (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/hour): 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;

Modification Issued: 10/12/2006

- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

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

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly 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 Section 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

Emissions Unit ID: **P012**

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 in Section B.1. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 Limitation:

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

Applicable Compliance Method:

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

2. Emissions Limitation:

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

Applicable Compliance Method:

Modification Issued: 10/12/2006

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.d.

3. Emissions Limitation:

6.9 % pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

4. Compliance with the production limitation in Section B.1 shall be demonstrated by the record keeping requirement in Section 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.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P013) - Lost Foam EPS process - 22.5 lbs/hour batch expander EXP-04, fugitive emissions - Modification

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 0.78 lb/hour. See Sections A.2.a, A.2.b, and B.2. 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, non-attainment new source review, and the Emission Offset Requirements	From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P013, P014, P015 and P016 shall not exceed 9.10 TPY, based on a rolling, 12-month summation. See Section 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 10% by weight.
- 2.b 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 emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

Modification Issued: 10/12/2006

1. The maximum annual EPS bead usage rate for emissions units P013, P014, P015 and P016, combined, shall not exceed **525,000** pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

The permittee has existing records to demonstrate compliance with this limitation upon permit issuance.

2. The maximum hourly EPS bead usage rate for emissions units P013, P014, P015 and P016, combined, shall not exceed 90 pounds per hour.

C. Monitoring and/or Record keeping 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 and P016, combined:
 - a. the EPS bead usage rate, in pounds, for each month;
 - b. 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; and
 - c. 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 emissions units P013, P014, P015 and P016 (0.03465 lb of pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/rolling, 12-month period) x Ton/2000 lbs] = Tons of (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,

Modification Issued: 10/12/2006

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 for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, then the permittee shall obtain a final permit to install prior to the change.

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
 - b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
 - c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.
4. The permittee shall record the actual hourly EPS consumption, for every hour the emissions unit is in operation, in order to demonstrate compliance with the hourly limitation in Section B.2.

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 Section 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).

Modification Issued: 10/12/2006

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 in Section B.1. The permittee shall also submit quarterly deviation (excursion) reports which identify all exceedances of the hourly limitation in Section B.2. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 and P016 for the previous calendar year. These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emissions Limitation:

0.78 lb/hour OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method

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

2. Emissions Limitation:

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

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the record keeping requirement in Section C.2.c.

3. Emissions Limitation:

10% pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

5. Compliance with the production limitation in Section B.2. shall be demonstrated by the record keeping requirement in Section C.4.

F. Miscellaneous Requirements

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

Modification Issued: 10/12/2006

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. Applicable Emissions Limitations and/or Control Requirements**

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

Operations, Property, and/or Equipment - (P014) - Lost Foam EPS process - 22.5 lbs/hour batch expander EXP-05, fugitive emissions - Modification

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	<p>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 0.78 lb/hour.</p> <p>See Sections A.2.a, A.2.b, and B.2.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).</p>
<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P013, P014, P015 and P016 shall not exceed 9.10 TPY, based on a rolling, 12-month summation.</p> <p>See Section B.1.</p>

2. Additional Terms and Conditions

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 10% by weight.
- 2.b 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 emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P013, P014, P015 and P016, combined, shall not exceed 525,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

The permittee has existing records to demonstrate compliance with this limitation upon permit issuance.

2. The maximum hourly EPS bead usage rate for emissions units P013, P014, P015 and P016, combined, shall not exceed 90 pounds per hour.

C. Monitoring and/or Record keeping 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 and P016, combined:
 - a. the EPS bead usage rate, in pounds, for each month;
 - b. 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; and
 - c. 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 emissions units P013, P014, P015 and P016 (0.03465 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/rolling, 12-month period) xTon/2000 lbs] = Tons of (pentane)/rolling, 12-month period.

3. The permit to install for emissions units P013 through P018 was evaluated based on

Emissions Unit ID: **P014**

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/hour): 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

Modification Issued: 10/12/2006

diameter, etc.).

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

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
 - b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
 - c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.
4. The permittee shall record the actual hourly EPS consumption, for every hour the emissions unit is in operation, in order to demonstrate compliance with the hourly limitation in Section B.2.

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 Section 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 in Section B.1. The permittee shall also submit quarterly deviation (excursion) reports which identify all exceedances of the hourly limitation in Section B.2. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 and P016 for the previous calendar year. These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emissions Limitation:

0.78 lb/hour OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method

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

2. Emissions Limitation:

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

Applicable Compliance Method:

Modification Issued: 10/12/2006

Compliance with the applicable rolling, 12-month OC (pentane) emissions limitation shall be demonstrated by the record keeping requirement in Section C.2.c.

3. Emissions Limitation:

10% pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

F. Miscellaneous Requirements

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P015) - Lost Foam EPS process - 22.5 lbs/hour batch expander EXP-06, fugitive emissions - Modification

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 0.78 lb/hour. See Sections A.2.a, A.2.b, and B.2. 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	From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P013, P014, P015 and P016 shall not exceed 9.10 TPY, based on a rolling, 12-month summation. See Section 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 10% by weight.
- 2.b 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 emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

Modification Issued: 10/12/2006

1. The maximum annual EPS bead usage rate for emissions units P013, P014, P015 and P016, combined, shall not exceed 525,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

The permittee has existing records to demonstrate compliance with this limitation upon permit issuance.

2. The maximum hourly EPS bead usage rate for emissions units P013, P014, P015 and P016, combined, shall not exceed 90 pounds per hour.

C. Monitoring and/or Record keeping 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 and P016, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. 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; and
- c. 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 emissions units P013, P014, P015 and P016 (0.03465 lb of pentane/lb EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/rolling, 12-month period) xTon/2000 lbs] = Tons of (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,

Modification Issued: 10/12/2006

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/hour): 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 for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, then the permittee shall obtain a final permit to install prior to the change.

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
 - b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
 - c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.
4. The permittee shall record the actual hourly EPS consumption, for every hour the emissions unit is in operation, in order to demonstrate compliance with the hourly limitation in Section B.2.

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 Section 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).

Modification Issued: 10/12/2006

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 in Section B.1. The permittee shall also submit quarterly deviation (excursion) reports which identify all exceedances of the hourly limitation in Section B.2. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 and P016 for the previous calendar year. These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emissions Limitation:

0.78 lb/hour OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method

Compliance with the lb/hour OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in EXP-04 (lbs of EPS/hour) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb of pentane emissions/lb of EPS). The pentane emissions factor shall be calculated by multiplying the actual pentane content of the EPS raw material in EXP-04 (lb of pentane/lb of EPS) by the amount of pentane emitted in EXP-04 (lb of pentane emissions/lb of 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 and P016, combined.

Applicable Compliance Method:

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.c.

3. Emissions Limitation:

10% pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

5. Compliance with the production limitation in Section B.2 shall be demonstrated by the record keeping requirement in Section C.4.

F. Miscellaneous Requirements

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

Modification Issued: 10/12/2006

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. Applicable Emissions Limitations and/or Control Requirements**

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

Operations, Property, and/or Equipment - (P016) - Lost Foam EPS process - 22.5 lbs/hour batch expander EXP-07, fugitive emissions - Modification

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	<p>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 0.78 lb/hour.</p> <p>See Sections A.2.a, A.2.b, and B.2.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).</p>
<p>OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements</p>	<p>From the building, the combined fugitive OC emissions in the form of pentane emissions emitted by emissions units P013, P014, P015 and P016 shall not exceed 9.10 TPY, based on a rolling, 12-month summation.</p> <p>See Section B.1.</p>

2. Additional Terms and Conditions

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 10% by weight.
- 2.b 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 emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P013, P014, P015 and P016, combined, shall not exceed 525,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

The permittee has existing records to demonstrate compliance with this limitation upon permit issuance.

2. The maximum hourly EPS bead usage rate for emissions units P013, P014, P015 and P016, combined, shall not exceed 90 pounds per hour.

C. Monitoring and/or Record keeping 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 and P016, combined:

- a. the EPS bead usage rate, in pounds, for each month;
- b. 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; and
- c. 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 emissions units P013, P014, P015 and P016 (0.03465 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/rolling, 12-month period) xTon/2000 lbs] = Tons of (pentane)/rolling, 12-month period.

3. The permit to install for emissions units P013 through P018 was evaluated based on

Emissions Unit ID: **P016**

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/hour): 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

Modification Issued: 10/12/2006

diameter, etc.).

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

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
 - b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
 - c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.
4. The permittee shall record the actual hourly EPS consumption, for every hour the emissions unit is in operation, in order to demonstrate compliance with the hourly limitation in Section B.2.

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 Section 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 in Section B.1. The permittee shall also submit quarterly deviation (excursion) reports which identify all exceedances of the hourly limitation in Section B.2. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 and P016 for the previous calendar year. These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Emissions Limitation:

0.78 lb/hour OC (pentane) as fugitive emissions from the building.

Applicable Compliance Method:

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

2. Emissions Limitation:

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

Applicable Compliance Method:

Modification Issued: 10/12/2006

Compliance with the applicable rolling, 12-month OC (pentane) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.c.

3. Emissions Limitation:

10% pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

5. Compliance with the production limitation in Section B.2 shall be demonstrated by the record keeping requirement in Section C.4.

F. Miscellaneous Requirements

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.
2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

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

A. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment - (P017) - Lost Foam EPS process - 90 lbs/hour batch storage (aging) bags SB-31 through SB-40, fugitive emissions - Modification

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 1.74 lbs/hour. See Sections A.2.a, A.2.b, and B.2. 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, non-attainment new source review, and the Emission Offset Requirements	From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 5.07 TPY, based on a rolling, 12-month summation. See Section 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 10% by weight.
- 2.b 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 emission limitations, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

Modification Issued: 10/12/2006

1. The maximum annual EPS bead usage rate for emissions unit P017 shall not exceed 525,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

The permittee has existing records to demonstrate compliance with this limitation upon permit issuance.

2. The maximum hourly EPS bead usage rate for emissions unit P017 shall not exceed 90 pounds per hour.

C. Monitoring and/or Record keeping 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. 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; and
- c. 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 emissions unit P017 (0.01931 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/rolling, 12-month period) x Ton/2000 lbs] = Tons of (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

Modification Issued: 10/12/2006

"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/hour): 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 for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, then the permittee shall obtain a final permit to install prior to the change.

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
 - b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
 - c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.
4. The permittee shall record the actual hourly EPS consumption, for every hour the emissions unit is in operation, in order to demonstrate compliance with the hourly limitation in Section B.2.

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 Section 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).

Modification Issued: 10/12/2006

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 in Section B.1. The permittee shall also submit quarterly deviation (excursion) reports which identify all exceedances of the hourly limitation in Section B.2. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 Limitation:

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

Emissions Unit ID: **P017**

Applicable Compliance Method:

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

2. Emissions Limitation:

5.07 TPY of 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) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.c.

3. Emissions Limitation:

10% pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

5. Compliance with the production limitation in Section B.2 shall be demonstrated by the record keeping requirement in Section C.4.

F. Miscellaneous Requirements

1. The following terms and conditions of this permit are federally enforceable: A, B, C.1, C.2, D and E.
2. The terms and conditions listed in this permit to install shall supersede all the air

Emissions Unit ID: **P017**

Modification Issued: 10/12/2006

pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.

Modification Issued: 10/12/2006

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. Applicable Emissions Limitations and/or Control Requirements**

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

Operations, Property, and/or Equipment - (P018) - Lost Foam EPS process - 90 lbs/hour molding presses LFP-01 through LFP-06, fugitive emissions - Modification

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	<p>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 0.65 lb/hour.</p> <p>See Sections A.2.a, A.2.b, and B.2.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C).</p>
OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V, non-attainment new source review, and the Emission Offset Requirements	<p>From the building, the fugitive OC emissions in the form of pentane emissions emitted by this emissions unit shall not exceed 1.89 TPY, based on a rolling, 12-month summation.</p> <p>See Section B.1.</p>

2. Additional Terms and Conditions

- 2.a The maximum pentane content of the EPS beads, incoming, from the bead supplier, shall not exceed 10% by weight.
- 2.b 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 emission limitation, and compliance with the rolling, 12-month OC emission limitation.

B. Operational Restrictions

1. The maximum annual EPS bead usage rate for emissions units P018 shall not exceed 525,000 pounds per year, based upon a rolling, 12-month summation of the EPS bead usage rate.

The permittee has existing records to demonstrate compliance with this limitation upon permit issuance.
2. The maximum hourly EPS bead usage rate for emissions unit P018 shall not exceed 90 pounds per hour.

C. Monitoring and/or Record keeping 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. 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; and
 - c. 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:

$$[\text{pentane loss from emissions unit P018 (0.00721 lb of pentane/lb of EPS beads) x the actual EPS bead usage rate from C.2.b (lbs of EPS beads/rolling, 12-month period) x Ton/2000 lbs}] = \text{Tons of (pentane)/rolling, 12-month period.}$$
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,

Knauf Polystyrene

DTL Application: 14-05510

Facility ID: 148306039

Emissions Unit ID: **P018**

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/hour): 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.).

Modification Issued: 10/12/2006

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

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
 - b. documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
 - c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.
4. The permittee shall record the actual hourly EPS consumption, for every hour the emission unit is in operation, in order to demonstrate compliance with the hourly limitation in Section B.2.

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 Section 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).

Knauf Polystyrene

DTL Application: 14-05510

Facility ID: 148306039

Emissions Unit ID: **P018**

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 in Section B.1. The permittee shall also submit quarterly deviation (excursion) reports which identify all exceedances of the hourly limitation in Section B.2. If exceedances occurred, the permittee shall also note if exceedances of the rolling, 12-month OC emission limitation 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 Limitation:

0.65 lb/hour OC (pentane) as fugitive emissions from the building.

Modification Issued: 10/12/2006

Applicable Compliance Method:

Compliance with the lb/hour OC (pentane) emissions limitation shall be demonstrated by multiplying the actual EPS usage rate in LFP-01 through LFP-06 (lbs of EPS/hour) by the pentane emissions factor as outlined in PTI Application 14-05540 (lb of pentane emissions/lb of 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 of pentane/lb of EPS) by the amount of pentane emitted in LFP-01 through LFP-06 (lb of pentane emissions/lb of 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) emission limitation shall be demonstrated by the record keeping requirement in Section C.2.c.

3. Emissions Limitation:

10% pentane by weight in the EPS beads.

Applicable Compliance Method:

Compliance with the pentane content limitation in Section A.2.a shall be demonstrated by the record keeping requirement in Section C.1.

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

5. Compliance with the production limitation in Section B.2 shall be demonstrated by the record keeping requirement in Section C.4.

F. Miscellaneous Requirements

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

Knauf Polystyrene

DTI Application: 14-05540

Facility ID: 148306039

Emissions Unit ID: P018

2. The terms and conditions listed in this permit to install shall supersede all the air pollution control requirements for this emissions unit contained in permit to install 14-05540 as issued on June 8, 2004.