



Joseph E. Kernan
Governor

Lori F. Kaplan
Commissioner

April 7, 2004

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.in.gov/idem

TO: Interested Parties / Applicant

RE: Cellefoam North America, Inc. / 081-18332-00017

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER.dot 9/16/03

April 8, 2004

Mr. Greg Bontrager
Cellofoam North America, Inc.
P.O. Box 406
Conyers, GA 30012

Re: **081-18332-00017**
First Significant Revision to
FESOP 081-10968-00017

Dear Mr. Montrager:

Cellofoam North America, Inc. was issued a permit on April 4, 2000 for an expanded polystyrene insulation board manufacturing plant. A letter requesting changes to this permit was received on December 18, 2003. Pursuant to the provisions of 326 IAC 2-8-11.1 a significant permit revision to this permit is hereby approved as described in the attached Technical Support Document.

Cellofoam has submitted a proposal to replace one of their steam expanders with a new larger expander. The proposed expander will increase the source production capacity from 841 pounds of polystyrene beads per hour to 2500 pounds per hour. The new steam expander will keep the polystyrene beads more uniform and provide a lower density threshold which in turn relates to better material yields.

The proposed modification will increase the polystyrene process potential to emit from 110.51 tons VOC/yr to 328.50 tons VOC/yr (an increase of 217.99 tons VOC/yr). However, Cellofoam has stated that they wish to maintain their current production limit which will result in no change in the allowable emission rates.

Adding the proposed expander does not trigger any new applicable rules. However, the increase in VOC PTE exceeds 25 tons/yr. Therefore, the proposed modification shall be permitted via a significant permit revision pursuant to 326 IAC 2-8-11.1(f)(1)(E)(iv) which states that any modification with a potential to emit greater than or equal to twenty-five (25) tons per year of volatile organic compounds (VOC) shall be permitted via a significant permit revision.

To incorporate the proposed changes into the permit, the following changes shall be made. All added information is indicated in bold type. All deleted information is struck out.

(a) Condition D.1.2:

Condition D.1.2 shall be changed as follows to reflect the adjusted production limit.

D.1.2 VOC and HAP Limits [326 IAC 2-8]

(a) The throughput of polystyrene beads shall be limited to ~~less than 2,723~~ **2656** tons per twelve (12) consecutive month period **or less** and the pentane content of the beads shall not exceed five percent (5.0%) by weight. **Based on the production limit, the pentane content limit, and a retention factor of forty percent (40%), this is equivalent to VOC emissions of 84.7 are determined to be 79.7** tons per twelve (12) consecutive month period.

(b) Individual HAP input delivered to the latex adhesive lamination roll coater shall not exceed a total

of ten (10) tons per twelve (12) consecutive month period rolled on a monthly basis. The combination of HAPs shall not exceed a total of twenty-five (25) tons per twelve (12) consecutive month period rolled on a monthly basis. Therefore, the requirements of 326 IAC 2-7 do not apply.

(b) Condition D.1.5:

Condition D.1.5 shall be changed as follows to only reference Condition D.1.2(b).

Condition D.1.5 references 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) as the means by which compliance with the "usage" limitations shall be determined for Conditions D.1.1 and D.1.2.

However, the only usage limitations established are the roll coater single and combined input HAP usage limits of Condition D.1.2(b). The limitations of Conditions D.1.1 and D.1.2(a) consists of straight production and pentane content limits. Therefore, the references to Condition D.1.1 and D.1.2(a) shall be removed.

Further, 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) pertain to VOCs only. Since the usage limits are HAP limits and not VOC limits, the methods specified in 326 IAC 8-1-2 and 326 IAC 8-1-4 do not apply. Therefore, the references to 326 IAC 8-1-2 and 326 IAC 8-1-4 shall be removed and replaced with the requirement to determine the single and combined input HAP utilizing the coating usage records and information obtained from the material safety data sheets (MSDS).

A statement shall also be added to require that compliance with the limits be determined within 30 days of the end of each month.

Finally, the condition header shall be renamed "Hazardous Air Pollutants (HAP)".

D.1.5 Volatile Organic Compounds (VOC) Hazardous Air Pollutants (HAP)

Compliance with the ~~VOC content and~~ **HAP** usage limitations contained in Conditions ~~D.1.1 and~~ **D.1.2(b)** shall be determined pursuant to ~~326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a)~~ using formulation data supplied by the coating manufacturer **and coating usage information maintained for the roll coater. Said determinations shall be demonstrated within 30 days of the end of each month.** ~~The IDEM, OAM, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4~~ **the appropriate methods.**

(c) Table of Contents:

The Table of Contents shall be amended to reflect the Condition D.1.5 header change.

(d) Condition D.1.6:

Condition D1.6 shall be amended as follows to include not only the production limit and styrene content limits of Condition D.1.1, but also the production limit of Condition D.1.2(a).

Further, since the referenced limits do not have anything to do with VOC usage but straight production and pentane content limits, the reference to total volatile organic compound usage shall be removed and replaced with language that specifies the amount of beads processed and maximum pentane content for the most recent month.

D.1.6 VOC Emissions

Compliance with Conditions D.1.1 **and D.1.2(a)** shall be demonstrated within 30 days of the end of each month based on the total ~~volatile organic compound usage~~ **amount of beads processed and**

the maximum percent pentane content for the most recent month.

(e) Condition D.1.7:

Condition D.1.7 shall be amended as follows to include all record keeping requirements necessary to document compliance with the limits of Conditions D.1.1 and D.1.2(a).

As previously stated, the only limits established for the source are the production and pentane limits which reduce the VOC emissions and the input HAP limits established to reduce the single and combined HAP emissions.

Condition D.1.6 requires the source to demonstrate compliance with the production and pentane limits on a monthly basis. Yet there are no record keeping requirements to document compliance.

Therefore, the appropriate record keeping requirements shall be added to Condition D.1.7.

Condition D.1.5 requires the source to determine and demonstrate compliance with the HAP limits of a monthly basis. However, the record keeping requirements of Condition D.1.7 require the source to maintain records of the input VOC, not HAPs.

Therefore, the record keeping requirements shall also be changed to require record keeping of the input HAPs. No record keeping of the input VOCs are necessary because the production limit established to reduce the VOC emissions to less than 100 tons per year are based on the allowable rate of 100 tons per year less the "potential" emissions from the remaining VOC emission points and no VOC limits were established for the affected emission point (the roll coater).

D.1.7 Record Keeping Requirements

(a) To document compliance with Conditions ~~D.1.1 and D.1.2(b)~~, the Permittee shall maintain records in accordance with (1) through (5) below. ~~Records maintained for (1) through (5) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC HAP usage limits and/or the VOC emission limits established in Condition D.1.1 and D.1.2(b).~~

- (1) The amount and ~~VOC~~ **HAP** content of each coating material and solvent used. Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used. Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents;
- (2) A log of the dates of use;
- (3) The cleanup solvent usage for each month;
- (4) The total ~~VOC~~ **HAP** usage for each month; and
- (5) The weight of ~~VOCs~~ **HAPs** emitted for each compliance period.

~~(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.~~

(b) To document compliance with the requirements of Conditions D.1.1(b) and D.1.2(a), the Permittee shall maintain records of the total amount of polystyrene beads processed each month.

(c) To document compliance with the requirements of Conditions D.1.1(a) and D.1.2(a), the Permittee shall maintain records of the maximum percent pentane input each month.

Records maintained for paragraphs (a) through (c) of this condition shall be taken monthly and shall be complete and sufficient to establish compliance with the HAP usage limits, the production limits, and pentane content limit established in Conditions D.1.1 and D.1.2.

All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

(f) Condition D.1.8:

Condition D.1.8 shall be changed as follows to correct a typographical error.

D.1.8 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.1 and D.1.2 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

(g) Polystyrene Bead Quarterly Report:

The polystyrene bead quarterly report shall be changed as follows to reflect the new production limit of 2656 tons per year.

Limit: 5% Pentane Content, ~~or lowest pentane content bead available and 2,723~~ **2,656** tons of beads. **Based on the production limit, content limit, and retention factor of 40%, equal to 81.7 the equivalent VOC emissions are determined to be 79.7 tons per consecutive twelve (12) month rolling average period.**

(h) New Condition D.1.5:

A new condition D.1.5 shall be added to require the source to validate the 0.03 lb VOC/lb beads emission factor.

US EPA Guidance "Control of VOC Emissions From Polystyrene Foam Manufacturing", EPA-450/3-90-020, August, 1990, establishes 15% as the overall amount retained in the final product after 48 hours. Since Cellofoam is claiming a percent retention greater than what is established in the EPA guidance, Cellofoam will be required to perform testing to determine the overall percent pentane retained and demonstrate that the 0.03 lb VOC/lb beads emission factor is valid.

As previously stated, the emission factor of 0.03 lb VOC emitted/lb beads is derived from a maximum pentane content of 5% and emission data derived from previous pentane content testing.

D.1.5 Testing Requirement to Validate Emission Factor

Within 90 days after issuance of Significant Permit Revision 081-18332-00017, the Permittee shall perform testing to validate the 0.03 lb VOC emitted/lb beads overall emission factor used to determine the VOC emissions, utilizing methods as approved by the Commissioner. Testing shall be conducted in accordance with Section C- Performance Testing.

All subsequent conditions shall be renumbered accordingly with all changes to the conditions of Section D.1 revised accordingly as well.

The following construction conditions are applicable to the proposed project:

1. General Construction Conditions

The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

3. Effective Date of the Permit

Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

4. Pursuant to 326 IAC 2-1.1-9 (Revocation), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

Pursuant to 326 IAC 2-8-11.1, this permit shall be revised by incorporating the significant permit revision into the permit. All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Scott Fulton, OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call at (800) 451-6027, press 0 and ask for Scott Fulton or extension (3-5691), or dial (317) 233-5691.

Sincerely,

Original Signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments

SDF

cc: File - Johnson County
U.S. EPA, Region V
Johnson County Health Department
Air Compliance Section Inspector - Vaughn Ison
Compliance Data Section
Administrative and Development

**FEDERALLY ENFORCEABLE STATE
OPERATING PERMIT (FESOP)
OFFICE OF AIR MANAGEMENT**

**Cellofoam North America, Inc.
150 Crossroads Drive
Whiteland, Indiana 46184**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: F 081-10968-00017	Date Issued: April 4, 2000 Expiration Date: April 4, 2005
Issued By: Paul Dubenetzky, Branch Chief, Office of Air Quality	

1st Administrative Amendment 081-13568-00017: Date Issued: January 12, 2001

First Significant Permit Revisions No.: 081-18332-00017	Affected Pages: 3, 24, 25, 26, and 31
Issued by: Original Signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	Issued: April 8, 2004

Corrective Actions and Response Steps [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

- C.11 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68.215]
- C.12 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-8-4]
[326 IAC 2-8-5] [326 IAC 1-6]
- C.13 Actions Related to Noncompliance Demonstrated by a Stack Test
[326 IAC 2-8-4] [326 IAC 2-8-5]

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]

- C.14 Monitoring Data Availability
- C.15 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]
- C.16 General Reporting Requirements [326 IAC 2-8-4(3)(C)]

Stratospheric Ozone Protection

- C.17 Compliance with 40 CFR 82 and 326 IAC 22-1

SECTION D.1 FACILITY OPERATION CONDITIONS: Line 1

Emission Limitations and Standards [326 IAC 2-8-5(1)]

- D.1.1 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]
- D.1.2 VOC and HAP Limits [326 IAC 2-8]
- D.1.3 Particulate Matter (PM) [326 IAC 6-3]

Compliance Determination Requirements [326 IAC 2-8-5(a)(1)&(4)] [326 IAC 2-1.1-11]

- D.1.4 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]
- D.1.5 Testing Requirement to Validate Emission Factor
- D.1.6 Hazardous Air Pollutants (HAP)
- D.1.7 VOC Emissions

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

- D.1.8 Record Keeping Requirements
- D.1.9 Reporting Requirements

SECTION D.2 FACILITY OPERATION CONDITIONS: Insignificant Activities

Emission Limitations and Standards [326 IAC 2-8-5(1)]

- D.2.1 Particulate Matter (PM)

Compliance Determination Requirements [326 IAC 2-8-5(a)(1)&(4)] [326 IAC 2-1.1-11]

- D.2.2 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

Certification Form

Emergency/Deviation Form

Quarterly Report Form

Quarterly Report Form

Quarterly Report Form

Quarterly Compliance Monitoring Report Form

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

One (1) line producing expanded polystyrene rigid board insulation, known as Line 1, installed in 1991, modified in 1994, exhausted to general ventilation capacity: 841 pounds of polystyrene beads per hour, consisting of the following equipment:

- (a) Two (2) steam expanders,
- (b) One (1) latex adhesive lamination roll coater, capacity: 7,000 square feet per hour,
- (c) One (1) 18' adjustable length and compression feature 36" thick mold, Model # HT48-216/144-36,
- (d) Eight (8) hot wire cutters,
- (e) One (1) storage area for intermediate and final products; and
- (f) One (1) band saw.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-8-5(1)]

D.1.1 Volatile Organic Compounds (VOCs) [326 IAC 8-1-6]

The requirement from CP 081-1987-00017, issued June 24, 1991, Condition 5 requiring a 1,624 tons per year polystyrene bead throughput limit is not applicable because CP 081-3548-00017 issued June 10, 1994 supercedes that permit. CP 081-3548-00017 did not incorporate a throughput limit. Based on the proposed limit submitted in the application for CP 081-3548-00017 and the current review BACT is:

- (a) The pentane content of the polystyrene beads shall not exceed five percent (5%) by weight and that the lowest pentane content material will be used as it becomes available on the market, and
- (b) The input of polystyrene beads to the production line shall be limited to 3,150 tons per year, based on a twelve (12) month rolling average equivalent to 94.5 tons of VOC per year assuming a 5% pentane content.

D.1.2 VOC and HAP Limits [326 IAC 2-8]

- (a) The throughput of polystyrene beads shall be limited to 2656 tons per twelve (12) consecutive month period or less and the pentane content of the beads shall not exceed five percent (5.0%) by weight. Based on the production limit, the pentane content limit, and a retention factor of forty percent (40%), the equivalent VOC emissions are determined to be 79.7 tons per twelve (12) consecutive month period.
- (b) Individual HAP input delivered to the latex adhesive lamination roll coater shall not exceed a total of ten (10) tons per twelve (12) consecutive month period rolled on a monthly basis. The combination of HAPs shall not exceed a total of twenty-five (25) tons per twelve (12) consecutive month period rolled on a monthly basis. Therefore, the requirements of 326 IAC 2-7 do not apply.

D.1.3 Particulate Matter (PM) [326 IAC 6-3]

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the latex adhesive lamination roll coater shall be limited by the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where} \quad \begin{array}{l} E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour.} \end{array}$$

Compliance Determination Requirements [326 IAC 2-8-5(a)(1)&(4)] [326 IAC 2-1.1-11]

D.1.4 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit. However, IDEM may require compliance testing when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the VOC limit specified in Condition D.1.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

D.1.5 Testing Requirement to Validate Emission Factor

Within 90 days after issuance of Significant Permit Revision 081-18332-00017, the Permittee shall perform testing to validate the 0.03 lb VOC emitted/lb beads overall emission factor used to determine the VOC emissions, utilizing methods as approved by the Commissioner. Testing shall be conducted in accordance with Section C- Performance Testing.

D.1.6 Hazardous Air Pollutants (HAP)

Compliance with the HAP usage limitations contained in Condition D.1.2(b) shall be determined using formulation data supplied by the coating manufacturer and coating usage information maintained for the roll coater. Said determinations shall be demonstrated within 30 days of the end of each month. The IDEM, OAM, reserves the authority to determine compliance using the appropriate methods.

D.1.7 VOC Emissions

Compliance with Conditions D.1.1 and D.1.2(a) shall be demonstrated within 30 days of the end of each month based on the total amount of beads processed and the maximum percent pentane content for the most recent month.

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.1.8 Record Keeping Requirements

(a) To document compliance with Condition D.1.2(b), the Permittee shall maintain records in accordance with (1) through (5) below.

- (1) The amount and HAP content of each coating material and solvent used. Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used. Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents;
- (2) A log of the dates of use;
- (3) The cleanup solvent usage for each month;

- (4) The total HAP usage for each month; and
- (5) The weight of HAPs emitted for each compliance period.
- (b) To document compliance with the requirements of Conditions D.1.1(b) and D.1.2(a), the Permittee shall maintain records of the total amount of polystyrene beads processed each month.
- (c) To document compliance with the requirements of Conditions D.1.1(a) and D.1.2(a), the Permittee shall maintain records of the maximum percent pentane input each month.

Records maintained for paragraphs (a) through (c) of this condition shall be taken monthly and shall be complete and sufficient to establish compliance with the HAP usage limits, the production limits, and pentane content limit established in Conditions D.1.1 and D.1.2.

All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.9 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.1 and D.1.2 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION**

FESOP Quarterly Report

Source Name: Cellofoam North America, Inc.
Source Address: 150 Crossroads Drive, Whiteland, Indiana 46184
Mailing Address: P.O. Box 406, Conyers, Georgia 30207
FESOP No.: F 081-10968-00017
Facility: Expanded Polystyrene Beads
Parameter: VOC
Limit: 5% Pentane Content and 2,656 tons of beads. Based on the production limit, content limit, and retention factor of 40%, the equivalent VOC emissions are determined to be 79.7 tons per consecutive twelve (12) month period.

YEAR: _____

Month	Polystyrene Beads (tons)	Polystyrene Beads (tons)	Polystyrene Beads (tons)
	This Month	Previous 11 Months	12 Month Total

- 9 No deviation occurred in this quarter.
- 9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by:
Title / Position:
Signature:
Date:
Phone:

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Significant Permit Revision to a Federally Enforceable State Operating Permit (FESOP)

Source Background and Description

Source Name: Cellofoam North America, Inc.
Source Location: 150 Crossroads Drive, Whiteland, Indiana 46184
County: Johnson
SIC Code: 3089
Permit No.: F 081-18332-00017
Permit Reviewer: SDF

The Office of Air Quality (OAQ) has reviewed an application from Cellofoam North America, Inc. relating to their expanded polystyrene insulation board manufacturing plant.

Cellofoam has submitted a proposal to replace one of their steam expanders with a new larger expander. The proposed expander will increase the source production capacity from 841 pounds of polystyrene beads per hour to 2500 pounds per hour. The new steam expander will keep the polystyrene beads more uniform and provide a lower density threshold which in turn relates to better material yields.

The proposed modification will increase the polystyrene process potential to emit from 110.51 tons VOC/yr to 328.50 tons VOC/yr (an increase of 217.99 tons VOC/yr). However, Cellofoam has stated that they wish to maintain their current production limit which will result in no change in the allowable emission rates.

Adding the proposed expander does not trigger any new applicable rules. However, the increase in VOC PTE exceeds 25 tons/yr. Therefore, the proposed modification shall be permitted via a significant permit revision pursuant to 326 IAC 2-8-11.1(f)(1)(E)(iv) which states that any modification with a potential to emit greater than or equal to twenty-five (25) tons per year of volatile organic compounds (VOC) shall be permitted via a significant permit revision.

Existing Approvals

The source is currently operating under FESOP 081-10968-00017, issued on April 4, 2000, and First Administrative Amendment 081-13568-00017, issued on January 12, 2001.

Recommendation

The staff recommends to the Commissioner that the Significant Permit Revision be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application.

An administratively complete application for the purposes of this review was received on December 18, 2003.

Emission Calculations

The emissions generated by the proposed modification are VOC emissions generated by the proposed expander. The proposed expander will increase the source production capacity from 841 pounds per hour to 2500 pounds per hour.

The following calculations determine the VOC emissions increase due to the modification. The potential to emit due to the modification is the difference between the estimated emissions after the modification and the emissions before the modification.

Potential Emissions After the Modification:

Cellofoam claims that overall, 40% of the input VOCs are retained in the product after 48 hours, which is equivalent to 60% of the input VOCs being emitted at the source.

$$\begin{aligned} 1 - \text{Fraction VOCs Retained} &= \text{VOCs emitted} \\ 1 - 0.4 &= 0.6 \end{aligned}$$

US EPA Guidance "Control of VOC Emissions From Polystyrene Foam Manufacturing", EPA-450/3-90-020, August, 1990, establishes 15% as the overall amount retained in the final product after 48 hours. Since Cellofoam is claiming a percent retention greater than what is established in the EPA guidance, Cellofoam will be required to perform testing to determine the overall percent pentane retained and demonstrate that the 0.03 lb VOC/lb beads emission factor is valid.

Based on the maximum input pentane content of the beads (0.05 lb pentane/lb beads) and the fraction of input pentane that is emitted (0.6 lb VOC emitted/lb pentane), Cellofoam derived the emission factor of 0.03 lb VOC emitted/lb beads.

$$0.05 \text{ lb pentane/lb beads} * 0.6 \text{ lb VOC emitted/lb pentane} = 0.03 \text{ lb VOC emitted/lb beads}$$

The following calculations determine the potential VOC emissions after the modification based on a maximum capacity of 2500 pounds of beads processed per hour, 0.03 lb VOC/lb beads, emissions before controls, and 8760 hours of operation.

$$2500 \text{ lb beads/hr} * 0.03 \text{ lb VOC/lb beads} * 8760 \text{ hr/yr} * 1/2000 \text{ ton/lb} = 328.50 \text{ tons VOC/yr}$$

Potential Emissions Before the Modification:

The following calculations determine the potential VOC emissions before the modification based on a maximum capacity of 841 pounds of beads processed per hour, 0.03 lb VOC/lb beads, emissions before controls, and 8760 hours of operation.

$$841 \text{ lb beads/hr} * 0.03 \text{ lb VOC/lb beads} * 8760 \text{ hr/yr} * 1/2000 \text{ ton/lb} = 110.51 \text{ tons VOC/yr}$$

Potential Emissions Due to the Modification:

$$328.50 \text{ tons/yr} - 110.51 \text{ tons VOC/yr} = 217.99 \text{ tons VOC/yr}$$

The emissions are uncontrolled.

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

Pollutant	Potential To Emit (tons/year)
PM	0.0
PM ₁₀	0.0
SO ₂	0.0
VOC	217.99
CO	0.0
NO _x	0.0

Note: For the purpose of determining Title V applicability for particulates, PM₁₀, not PM, is the regulated pollutant in consideration.

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of VOC due to the modification (217.99 tons/yr) exceeds 25 tons/yr. Therefore, the proposed modification shall be permitted via a significant permit revision pursuant to 326 IAC 2-8-11.1(f)(1)(E)(iv) which states that any modification with a potential to emit greater than or equal to twenty-five (25) tons per year of volatile organic compounds (VOC) shall be permitted via a significant permit revision.
- (b) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, any fugitive volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Limited Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits. Cellofoam has stated that they wish to maintain their current production limit which will maintain the source allowable VOC emissions at the current level. All other source emissions will remain the same. Therefore, the limited source emissions after the modification equal the limited source emissions prior to the modification.

Process/facility	Limited Potential to Emit (tons/year)							
	PM	PM ₁₀	SO ₂	VOC	CO	NO _x	Single HAP	Combined HAP
Expanded Polystyrene Process	-	-	-	81.70	-	-	-	-
Roll Coater	-	-	-	17.30	-	-	<10	<25
Insignificant Activities	2.00	2.00	1.00	2.00	2.00	2.00	neg.	neg.
Total Emissions	2.00	2.00	1.00	101.00	2.00	2.00	< 10	<25

- (a) The polystyrene bead production is limited to less than 2,723 tons per twelve (12) consecutive month

period to satisfy the requirements of 326 IAC 2-8-4 and the polystyrene production and pentane content of the beads are limited to 3,150 tons per twelve (12) consecutive month period and five percent (5.0%) by weight or less, resulting in a VOC emission limit of 81.7 tons per year.

- (b) The input single and combined HAPs from the roll coater are limited to less than 10 and 25 tons per year, respectively.

Upon review of the limited emissions, it was discovered that the insignificant activity VOC emissions were not included when establishing the production limit. Thus, the source total is determined to be 101 tons/yr which exceeds the allowable FESOP level of 100 tons/yr.

Therefore, to correct this error, the production limit shall be adjusted to reflect a new allowable emission rate of 81.7 tons/yr less the VOC emissions associated with the insignificant activities (2.00 tons/yr), or 79.7 tons/yr.

$$\begin{array}{rcl} \text{Current Allowable Production Emissions} & - & \text{Insignificant Activity VOC Emissions} = \text{Adjusted VOC Emissions} \\ (81.7 \text{ tons VOC/yr}) & - & (2.00 \text{ tons VOC/yr}) = 79.7 \text{ tons VOC/yr} \end{array}$$

The following calculations determine the revised allowable production rate based on the revised allowable emissions rate of 79.7 tons/yr, and 0.03 lb VOC/lb beads.

$$79.7 \text{ tons VOC/yr} * 2000 \text{ lb VOC/ton VOC} * 1/0.03 \text{ lb beads/lb VOC} * 1/2000 \text{ tons beads/lb beads} = 2656 \text{ tons beads/yr}$$

The table below summarizes the adjusted total potential to emit, reflecting all limits.

Process/facility	Limited Potential to Emit (tons/year)							
	PM	PM ₁₀	SO ₂	VOC	CO	NO _x	Single HAP	Combined HAP
Expanded Polystyrene Process	-	-	-	79.70	-	-	-	-
Roll Coater	-	-	-	17.30	-	-	<10	<25
Insignificant Activities	2.00	2.00	1.00	2.00	2.00	2.00	neg.	neg.
Total Emissions	2.00	2.00	1.00	99.00	2.00	2.00	< 10	<25

Process/facility	PM	PM ₁₀	SO ₂	VOC	CO	NO _x	Single HAP	Combined HAP
PSD Levels (tons/yr)	250	250	250	250	250	250	-	-
Part 70 Major Levels (tons/yr)	100	100	100	100	100	100	<10	<25

- (a) The polystyrene bead production limit has been adjusted to 2656 tons per twelve (12) consecutive month period for the purposes of 326 IAC 2-8-4 while the pentane content of the beads is still limited to five percent (5.0%) by weight or less and the production is limited to 3,150 tons per consecutive twelve (12) month period for the purposes of 326 IAC 8-1-6. These limits result in a VOC emission limit of 79.70 tons per year.
- (b) The input single and combined HAPs from the roll coater are still limited to less than 10 and 25 tons per year, respectively.
- (c) The source is not a major PSD stationary source because no criteria pollutant emissions are greater than the applicable level or 250 tons per year or more and it is not one of the 28 listed source categories.

- (d) This source is not a Part 70 major stationary source because no criteria pollutants exceed the applicable level of 100 tons per year and the single and combined HAP emissions are less than the respective applicable levels of 10 and 25 tons per year.

County Attainment Status

The source is located in Johnson County.

Pollutant	Status
PM ₁₀	Attainment
SO ₂	Attainment
NO ₂	Attainment
Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Johnson County has been designated as attainment or unclassifiable for ozone.
- (b) Johnson County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Federal Rule Applicability

- (a) There are still no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.
- (b) There are still no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is still located in Johnson County and the potential to emit VOC is now limited to less than 100 tons per year, therefore, 326 IAC 2-6 still does not apply.

326 IAC 2-8-4 (FESOP)

- (a) Pursuant to this rule, the throughput of polystyrene beads shall be limited to less than 2,656 tons per twelve (12) consecutive month period and the pentane content of the beads shall not exceed five percent (5.0%) by weight. This is equivalent to VOC emissions of 79.7 tons per twelve (12) consecutive month period.
- (b) Pursuant to this rule, the amount of a single HAP shall be limited to less than ten (10) tons per year and the combination of all HAPs shall be limited to less than twenty-five (25) tons per year.

Therefore, the requirements of 326 IAC 2-7, do not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity limitations), except as provided in 326 IAC 5-1-3 (Temporary alternative opacity limitations), opacity shall still meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 6-3 (Process Operations)

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the latex adhesive lamination roll coater shall still be limited by the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour.

326 IAC 8-1-6 (New Facilities, General Reduction Requirements)

The existing BACT consists of the following:

- (a) The pentane content of the polystyrene beads shall still not exceed five percent (5%) by weight and that the lowest pentane content material will be used as it becomes available on the market, and
- (b) That the input of polystyrene beads to the production line shall still be limited to 3,150 tons per year, based on a twelve (12) month rolling average equivalent to 94.5 tons per year assuming a five percent (5%) pentane content.

The original BACT performed for this operation identified the "facility" as the aggregate sum of all equipment of the polystyrene production line. Cellofoam is proposing to replace one of their existing expanders (part of the process) which is considered a "modification" to the process. Further, said expander is not considered a replacement because the cost of the proposed expander is less than 50% of the cost of the "facility".

Therefore, since the proposed expander is a "modification" to an existing affected facility and not a new facility as specified in 326 IAC 8-1-6, the requirements of 326 IAC 8-1-6 do not apply.

State Rule Applicability - Insignificant Activities

326 IAC 6-2-4 (Particulate Matter Emission Limitations for Sources of Indirect Heating)

The PM emissions from the 5.25 MMBtu per hour heat input boiler shall still be limited to 0.6 pounds per

MMBtu heat input.

Changes to the Permit

To incorporate the proposed modification into the permit, the following changes shall be made. All added information is indicated in bold type. All deleted information is struck out.

(a) Condition D.1.2:

Condition D.1.2 shall be changed as follows to reflect the adjusted production limit.

D.1.2 VOC and HAP Limits [326 IAC 2-8]

- (a) The throughput of polystyrene beads shall be limited to ~~less than 2,723~~ **2656** tons per twelve (12) consecutive month period **or less** and the pentane content of the beads shall not exceed five percent (5.0%) by weight. **Based on the production limit, the pentane content limit, and a retention factor of forty percent (40%), this is equivalent to VOC emissions of 84.7 are determined to be 79.7** tons per twelve (12) consecutive month period.
- (b) Individual HAP input delivered to the latex adhesive lamination roll coater shall not exceed a total of ten (10) tons per twelve (12) consecutive month period rolled on a monthly basis. The combination of HAPs shall not exceed a total of twenty-five (25) tons per twelve (12) consecutive month period rolled on a monthly basis. Therefore, the requirements of 326 IAC 2-7 do not apply.

(b) Condition D.1.5:

Condition D.1.5 shall be changed as follows to only reference Condition D.1.2(b).

Condition D.1.5 references 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) as the means by which compliance with the "usage" limitations shall be determined for Conditions D.1.1 and D.1.2.

However, the only usage limitations established are the roll coater single and combined input HAP usage limits of Condition D.1.2(b). The limitations of Conditions D.1.1 and D.1.2(a) consists of straight production and pentane content limits. Therefore, the references to Condition D.1.1 and D.1.2(a) shall be removed.

Further, 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) pertain to VOCs only. Since the usage limits are HAP limits and not VOC limits, the methods specified in 326 IAC 8-1-2 and 326 IAC 8-1-4 do not apply. Therefore, the references to 326 IAC 8-1-2 and 326 IAC 8-1-4 shall be removed and replaced with the requirement to determine the single and combined input HAP utilizing the coating usage records and information obtained from the material safety data sheets (MSDS).

A statement shall also be added to require that compliance with the limits be determined within 30 days of the end of each month.

Finally, the condition header shall be renamed "Hazardous Air Pollutants (HAP)".

D.1.5 Volatile Organic Compounds (VOC) Hazardous Air Pollutants (HAP)

Compliance with the ~~VOC content and HAP~~ usage limitations contained in Conditions ~~D.1.1 and D.1.2(b)~~ shall be determined pursuant to ~~326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a)~~ using formulation data supplied by the coating manufacturer **and coating usage information maintained for the roll coater.**

Said determinations shall be demonstrated within 30 days of the end of each month. The IDEM, OAM, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4 the appropriate methods.

(c) Table of Contents:

The Table of Contents shall be amended to reflect the Condition D.1.5 header change.

(d) Condition D.1.6:

Condition D1.6 shall be amended as follows to include not only the production limit and styrene content limits of Condition D.1.1, but also the production limit of Condition D.1.2(a).

Further, since the referenced limits do not have anything to do with VOC usage but straight production and pentane content limits, the reference to total volatile organic compound usage shall be removed and replaced with language that specifies the amount of beads processed and maximum pentane content for the most recent month.

D.1.6 VOC Emissions

Compliance with Conditions D.1.1 and D.1.2(a) shall be demonstrated within 30 days of the end of each month based on the total ~~volatile organic compound usage~~ **amount of beads processed and the maximum percent pentane content** for the most recent month.

(e) Condition D.1.7:

Condition D.1.7 shall be amended as follows to include all record keeping requirements necessary to document compliance with the limits of Conditions D.1.1 and D.1.2(a).

As previously stated, the only limits established for the source are the production and pentane limits which reduce the VOC emissions and the input HAP limits established to reduce the single and combined HAP emissions.

Condition D.1.6 requires the source to demonstrate compliance with the production and pentane limits on a monthly basis. Yet there are no record keeping requirements to document compliance.

Therefore, the appropriate record keeping requirements shall be added to Condition D.1.7.

Condition D.1.5 requires the source to determine and demonstrate compliance with the HAP limits of a monthly basis. However, the record keeping requirements of Condition D.1.7 require the source to maintain records of the input VOC, not HAPs.

Therefore, the record keeping requirements shall also be changed to require record keeping of the input HAPs. No record keeping of the input VOCs are necessary because the production limit established to reduce the VOC emissions to less than 100 tons per year are based on the allowable rate of 100 tons per year less the "potential" emissions from the remaining VOC emission points and no VOC limits were established for the affected emission point (the roll coater).

D.1.7 Record Keeping Requirements

(a) To document compliance with Conditions ~~D.1.1 and D.1.2(b)~~, the Permittee shall maintain records in accordance with (1) through (5) below. ~~Records maintained for (1) through (5) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC HAP usage limits and/or the VOC emission limits established in Condition D.1.1 and D.1.2(b).~~

- (1) The amount and ~~VOC~~ **HAP** content of each coating material and solvent used. Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used. Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents;
- (2) A log of the dates of use;
- (3) The cleanup solvent usage for each month;
- (4) The total ~~VOC~~ **HAP** usage for each month; and
- (5) The weight of ~~VOCs~~ **HAPs** emitted for each compliance period.

~~(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.~~

(b) To document compliance with the requirements of Conditions D.1.1(b) and D.1.2(a), the Permittee shall maintain records of the total amount of polystyrene beads processed each month.

(c) To document compliance with the requirements of Conditions D.1.1(a) and D.1.2(a), the Permittee shall maintain records of the maximum percent pentane input each month.

Records maintained for paragraphs (a) through (c) of this condition shall be taken monthly and shall be complete and sufficient to establish compliance with the HAP usage limits, the production limits, and pentane content limit established in Conditions D.1.1 and D.1.2.

All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

(f) Condition D.1.8:

Condition D.1.8 shall be changed as follows to correct a typographical error.

D.1.8 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.1 and D.1.2 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

(g) Polystyrene Bead Quarterly Report:

The polystyrene bead quarterly report shall be changed as follows to reflect the new production limit of 2656 tons per year.

Limit: 5% Pentane Content, ~~or lowest pentane content bead available and 2,723~~ **2,656** tons of beads. **Based on the production limit, content limit, and retention factor of 40%, equal to 81.7 the equivalent VOC emissions are determined to be 79.7 tons per consecutive twelve (12) month rolling average period.**

(h) New Condition D.1.5:

A new condition D.1.5 shall be added to require the source to validate the 0.03 lb VOC/lb beads emission factor.

US EPA Guidance "Control of VOC Emissions From Polystyrene Foam Manufacturing", EPA-450/3-90-020, August, 1990, establishes 15% as the overall amount retained in the final product after 48 hours. Since Cellofoam is claiming a percent retention greater than what is established in the EPA guidance, Cellofoam will be required to perform testing to determine the overall percent pentane retained and demonstrate that the 0.03 lb VOC/lb beads emission factor is valid.

As previously stated, the emission factor of 0.03 lb VOC emitted/lb beads is derived from a maximum pentane content of 5% and emission data derived from previous pentane content testing.

D.1.5 Testing Requirement to Validate Emission Factor

Within 90 days after issuance of Significant Permit Revision 081-18332-00017, the Permittee shall perform testing to validate the 0.03 lb VOC emitted/lb beads overall emission factor used to determine the VOC emissions utilizing methods as approved by the Commissioner. Testing shall be conducted in accordance with Section C- Performance Testing.

All subsequent conditions shall be renumbered accordingly with all changes to the conditions of Section D.1 revised accordingly as well.

Conclusion

The operation of this expanded polystyrene insulation board manufacturing plant shall be subject to the conditions of significant permit revision 081-18332-00017 and all other existing approvals.