



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

TO: Interested Parties / Applicant

DATE: September 23, 2010

RE: Cereplast, Inc. / 071-29361-00044

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Notice of Decision – Approval

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 326 IAC 2, this approval was effective immediately upon submittal of the application.

If you wish to challenge this decision, IC 4-21.5-3-7 requires 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, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days from 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-AM.dot12/3/07



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Mr. Mark Barton
Cereplast, Inc.
2213 Killion Avenue
Seymour, IN, 47274

September 23, 2010

Re: Exempt Construction and Operation Status,
071-29361-00044

Dear Mr. Barton:

The application from Cereplast, Inc., received on June 14, 2010, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following stationary plastic compounding plant located at 2213 Killion Avenue, Seymour, IN 47274 is classified as exempt from air pollution permit requirements:

- (a) One (1) Polypropylene Copolymer Resin Line, identified as Line 1, constructed in 2010, with a maximum capacity of 6,000 lbs/hr, and consisting of:
 - (1) One (1) extruder, identified as Extruder 1, utilizing no control equipment, and exhausting within the building.
 - (2) One (1) enclosed mixer, identified as Mixer 1, utilizing integral baghouse CE01, and exhausting through stack S1.
 - (3) One (1) material handling and conveying process, utilizing integral baghouse CE01, and exhausting through stack S1.

- (b) One (1) Polyester Blend Resin Line, identified as Line 2, constructed in 2010, with a maximum capacity of 3,000 lbs/hr, and consisting of:
 - (1) One (1) extruder, identified as Extruder 2, utilizing no control equipment, and exhausting within the building.
 - (2) One (1) enclosed mixer, identified as Mixer 2, utilizing no control equipment, and exhausting within the building.
 - (3) One (1) material handling and conveying process, utilizing integral baghouse CE01, and exhausting through stack S1.

The following conditions shall be applicable:

- 1. 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 meet the following, unless otherwise stated in this permit:
 - (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

- (2) 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.
2. 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.
3. Pursuant to 326 IAC 6-3-2, particulate emissions from each of following operations shall not exceed the pound per hour limit listed in the table below:

Line	Process Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
1	Extruder	3.0	8.56
	Mixing		
	Material Handling / Conveying		
2	Extruder	1.5	5.38
	Mixing		
	Material Handling / Conveying		

The pounds per hour limitations were calculated using the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

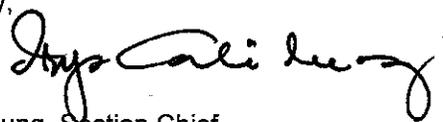
$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

The source shall operate the integral baghouse CE01 at all times Mixer 1 and/or material handling and conveying processes are in operation.

This exemption is the first air approval issued to this source. A copy of the Exemption is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source. If you have any questions on this matter, please contact Jason R. Krawczyk, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, at 317-232-8427 or at 1-800-451-6027 (ext 28427).

Sincerely,



Iryn Calilung, Section Chief
Permits Branch
Office of Air Quality

IC/JRK

cc: File - Jackson County
Jackson County Health Department
Compliance and Enforcement Branch
Billing, Licensing and Training Section

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Description and Location

Source Name:	Cereplast, Inc.
Source Location:	2213 Killion Avenue, Seymour, IN 47274
County:	Jackson
SIC Code:	3087
Exemption No.:	071-29361-00044
Permit Reviewer:	Jason R. Krawczyk

On June 14, 2010, the Office of Air Quality (OAQ) received an application from Cereplast, Inc. related to the operation of an existing plastic compounding plant.

Existing Approvals

There have been no previous approvals issued to this source.

County Attainment Status

The source is located in Jackson County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Attainment effective December 29, 2005, for the 8-hour ozone standard. ¹
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.
¹ Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005. Unclassifiable or attainment effective April 5, 2005, for PM _{2.5} .	

- (a) **Ozone Standards**
 Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Jackson County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) **PM_{2.5}**
 Jackson County has been classified as attainment for PM_{2.5}. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM_{2.5} emissions. These rules became effective on July 15, 2008. Indiana has three years from the publication of these rules to revise its PSD rules, 326 IAC 2-2, to include those requirements. The May 8, 2008 rule revisions require IDEM to regulate PM₁₀ emissions as a surrogate for PM_{2.5} emissions until 326 IAC 2-2 is revised.

- (c) Other Criteria Pollutants
Jackson County has been classified as attainment or unclassifiable in Indiana for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

The fugitive emissions of criteria pollutants and hazardous air pollutants are counted toward the determination of 326 IAC 2-1.1-3 (Exemptions) applicability.

Background and Description of Emission Units and Pollution Control Equipment

The Office of Air Quality (OAQ) has reviewed an application, submitted by Cereplast, Inc. on June 14, 2010, relating to the construction and operation of a plastic compounding plant.

The source consists of the following existing emission units:

- (a) One (1) Polypropylene Copolymer Resin Line, identified as Line 1, constructed in 2010, with a maximum capacity of 6,000 lbs/hr, and consisting of:
- (1) One (1) extruder, identified as Extruder 1, utilizing no control equipment, and exhausting within the building.
 - (2) One (1) enclosed mixer, identified as Mixer 1, utilizing integral baghouse CE01, and exhausting through stack S1.
 - (3) One (1) material handling and conveying process, utilizing integral baghouse CE01, and exhausting through stack S1.
- (b) One (1) Polyester Blend Resin Line, identified as Line 2, constructed in 2010, with a maximum capacity of 3,000 lbs/hr, and consisting of:
- (1) One (1) extruder, identified as Extruder 2, utilizing no control equipment, and exhausting within the building.
 - (2) One (1) enclosed mixer, identified as Mixer 2, utilizing no control equipment, and exhausting within the building.
 - (3) One (1) material handling and conveying process, utilizing integral baghouse CE01, and exhausting through stack S1.

Unpermitted Emission Units and Pollution Control Equipment

At the time of this review there were no unpermitted emission units operating at this source.

“Integral Part of the Process” Determination

The applicant has submitted the following information to justify why baghouse CE01 should be considered an integral part of the conveying systems.

The process operations at the plant include pneumatic conveying to move plastic resins to processing lines. The nature of this operation is such that equipment typically viewed as air pollution control equipment is, for these operations, necessary to the proper functioning of the equipment, and therefore integral to the process units. The pneumatic transfer system works using vacuum pumps, which pulls air through the associated conduits to a baghouse. The baghouse is used to collect the transferred material

and protects the vacuum pumps from damage by fine particles that may be entrained in the air streams. Since the baghouse makes the transfer of the material possible and protects the vacuum pumps from damage, they are considered integral to the process.

IDEM, OAQ has evaluated the information submitted and agrees that the dust collection systems should be considered an integral part of the conveying systems. This determination is based on the fact that the use of the baghouse is to protect the vacuum pumps from damage and not for particulate control. Therefore, the permitting level will be determined using the potential to emit after the dust collection systems. Operating conditions in the proposed permit will specify that the dust collection systems shall operate at all times when the conveying systems are in operation.

Enforcement Issues

There are no pending enforcement actions related to this source.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – Exemption

The following table reflects the unlimited potential to emit (PTE) of the entire source before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/ Emission Unit	Potential To Emit of the Entire Source (tons/year)								Worst Single HAP
	PM	PM10*	PM2.5	SO ₂	NO _x	VOC	CO	Total HAPs	
Natural Gas Combustion	0.02	0.07	0.07	0.01	0.91	0.05	0.77	0.02	0.02 Hexane
Extruders 1 and 2	1.71	1.71	1.71	-	-	1.87	-	negl.	negl.
Mixer 1	2.50	2.50	2.50	-	-	-	-	-	-
Mixer 2	0.06	0.06	0.06	-	-	-	-	-	-
Material Handling / Conveying	0.44	0.44	0.44	-	-	-	-	-	-
Paved Roadways	0.02	negl.	negl.	-	-	-	-	-	-
Total PTE of Entire Source	4.74	4.78	4.78	0.01	0.91	1.92	0.77	0.02	0.02 Hexane
Exemptions Levels	5	5	5	10	10	10	25	25	10
Registration Levels	25	25	25	25	25	25	100	25	10
negl. = negligible									
* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant".									

- (a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of all regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3 (Exemptions).
- (b) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-7.

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

Compliance Assurance Monitoring (CAM)

- (c) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, because the unlimited potential to emit of the source is less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

State Rule Applicability Determination

The following state rules are applicable to the source:

- (a) 326 IAC 2-1.1-3 (Exemptions)
Exemption applicability is discussed under the Permit Level Determination – Exemption section above.
- (b) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-4.1.
- (c) 326 IAC 2-6 (Emission Reporting)
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.
- (d) 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 meet the following, unless otherwise stated in this permit:
- (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
 - (2) 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.
- (e) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

- (f) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
The source is not subject to the requirements of 326 IAC 6-5, because the source does not have potential fugitive particulate emissions greater than 25 tons per year. Therefore, 326 IAC 6-5 does not apply.
- (g) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Each of the emission units at this source is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each emission unit is less than twenty-five (25) tons per year.

No AP-42 emission factor exists for the extrusion of polypropylene and polyethylene. The sources for the alternate emission factors are:

"Development of Emission Factors for Polypropylene Processing", Journal of Air and Waste Management Association, Volume 49, January 1999.

"Development of Emission Factors for Polyethylene Processing", Journal of Air and Waste Management Association, Volume 46, January 1996.

IDEM's Compliance and Enforcement Branch has previously accepted the use of these polypropylene and polyethylene processing emission factors. Therefore, stack testing is not necessary to verify the emission factors.

Line 1 & Line 2

- (h) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
Pursuant to 326 IAC 6-3-2, particulate emissions from each of following operations shall not exceed the pound per hour limit listed in the table below:

Line	Process Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
1	Extruder 1	3.0	8.56
	Mixer 1		
	Material Handling / Conveying		
2	Extruder 2	1.5	5.38
	Mixer 2		
	Material Handling / Conveying		

The pounds per hour limitations were calculated using the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

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

Based on calculations, control devices are not needed to comply with these limits.

However, the integral control baghouse CE01 shall be operated at all times Mixer 1 and/or the material handling and conveying processes are in operation, in order to maintain Exempt operating status.

IDEM has previously accepted the use of the AP-42 emission factor from Chapter 8.2, Table 8.2-1 for urea bagging, for a similar process permitted for Sabic Innovative Plastics US, LLC, in Registration # 005-25552-00049 issued on December 11, 2007.

Based on conversations with IDEM's Compliance and Enforcement Branch, stack testing is not necessary to verify the emission factor.

- (i) 326 IAC 12 (New Source Performance Standards)
See Federal Rule Applicability Section of this TSD.
- (j) 326 IAC 20 (Hazardous Air Pollutants)
See Federal Rule Applicability Section of this TSD.

Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on June 14, 2010.

The operation of this source shall be subject to the conditions of the attached proposed Exemption No. 071-29361-00044. The staff recommends to the Commissioner that this Exemption be approved.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Jason R. Krawczyk at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 232-8427 or toll free at 1-800-451-6027 extension 2-8427.
- (b) A copy of the findings is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>
- (c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.in.gov/idem

SUMMARY OF EMISSIONS

Company Name: Cereplast, Inc.
Address City IN Zip: 2213 Killion Ave., Seymour, IN 47274
Permit Number: 071-29361-00044
Plt ID: 071-00044
Reviewer: Jason R. Krawczyk
Date: September 3, 2010

Uncontrolled Emissions (Tons/Yr)							
Pollutant	Nat. Gas Combustion	Extruder 1 & 2	Mixer 1	Mixer 2	Material Handling	Roadways	Total
PM	0.02	1.71	2.50	0.06	0.44	0.02	4.74
PM10	0.07	1.71	2.50	0.06	0.44	0.00	4.78
PM2.5	0.07	1.71	2.50	0.06	0.44	0.00	4.78
VOC	0.05	1.87	-	-	-	-	1.92
NOx	0.91	-	-	-	-	-	0.91
SO2	0.01	-	-	-	-	-	0.01
CO	0.77	-	-	-	-	-	0.77
Single HAP (Hexane)	0.02	-	-	-	-	-	0.02
Combined HAPs	0.02	0.00	-	-	-	-	0.02

Controlled Emissions (Tons/Yr)							
Pollutant	Nat. Gas Combustion	Extruder 1 & 2	Mixer 1	Mixer 2	Material Handling	Roadways	Total
PM	0.02	1.71	2.50	0.06	0.44	0.02	4.74
PM10	0.07	1.71	2.50	0.06	0.44	0.00	4.78
PM2.5	0.07	1.71	2.50	0.06	0.44	0.00	4.78
VOC	0.05	1.87	-	-	-	-	1.92
NOx	0.91	-	-	-	-	-	0.91
SO2	0.01	-	-	-	-	-	0.01
CO	0.77	-	-	-	-	-	0.77
Single HAP (Hexane)	0.02	-	-	-	-	-	0.02
Combined HAPs	0.02	0.00	-	-	-	-	0.02

**Appendix A: Emissions Calculations
Natural Gas Combustion Only**

Company Name: Cereplast, Inc.
Address City IN Zip: 2213 Killion Ave., Seymour, IN 47274
Permit Number: 071-29361-00044
Pit ID: 071-00044
Reviewer: Jason R. Krawczyk
Date: September 3, 2010

Heat Input Capacity
MMBtu/hr
1.56
0.52
2.08

Potential Throughput
MMCF/yr
13.67
4.56
18.22

Emission Units
Warehouse Space Heaters (4 @ 0.39 MMBtu/hr, each)
Dock Door Tube Heaters (4 @ 0.13 MMBtu/hr, each)

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100 **see below	5.5	84
Potential Emission in tons/yr	0.02	0.07	0.01	0.91	0.05	0.77

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 3 for HAPs emissions calculations.

**Appendix A: Emissions Calculations
Natural Gas Combustion Only
HAPs Emissions**

Company Name: Cereplast, Inc.
Address City IN Zip: 2213 Killion Ave., Seymour, IN 47274
Permit Number: 071-29361-00044
Plt ID: 071-00044
Reviewer: Jason R. Krawczyk
Date: September 3, 2010

HAPs - Organics					
Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.913E-05	1.093E-05	6.833E-04	1.640E-02	3.098E-05

HAPs - Metals					
Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	4.555E-06	1.002E-05	1.275E-05	3.462E-06	1.913E-05

Methodology is the same as page 2.

The five highest organic and metal HAPs emission factors are provided above.
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Potential Emissions From Line 1 and Line 2 Extrusion Process

Company Name: Cereplast, Inc.
Address City IN Zip: 2213 Killion Ave., Seymour, IN 47274
Permit Number: 071-29361-00044
Plt ID: 071-00044
Reviewer: Jason R. Krawczyk
Date: September 3, 2010

Extruder	Component	Max Throughput (lb/hr)	VOC		PM/PM10/PM2.5		
			Emission Factor (lb/1,000,000 lb)	Uncontrolled Emission Rate (lb/hr) (ton/yr)	Emission Factor (lb/1,000,000 lb)	Uncontrolled Emission Rate (lb/hr) (ton/yr)	
1	Polypropylene Resin	6000	59.4	0.18 (0.78)	27.9	0.17 (0.73)	
2	Polyester Resin Blend	3000	35.3	0.11 (0.46)	31	0.09 (0.41)	
Total:				0.28	1.24	Total:	0.26 (1.14)
Safety Factor:				1.50	1.50	Safety Factor:	1.50 (1.50)
Adjusted Total:				0.43	1.87	Adjusted Total:	0.39 (1.71)

Extruder	Hazardous Air Pollutant	Max Throughput (lb/hr)	Emission Factor (lb/1,000,000 lb)	Uncontrolled Emission Rate (lb/hr) (ton/yr)	
1	Formaldehyde	3000	0.09	0.000	0.001
	Acrolein		0.01	0.000	0.000
	Acetaldehyde		0.08	0.000	0.000
	Propionaldehyde		0.02	0.000	0.000
Total:			0.000	0.001	
Safety Factor:			1.500	1.500	
Adjusted Total:			0.00	0.002	

Extruder	Hazardous Air Pollutant	Max Throughput (lb/hr)	Emission Factor (lb/1,000,000 lb)	Uncontrolled Emission Rate (lb/hr) (ton/yr)	
2	Formaldehyde	3000	0.15	0.000	0.002
	Acetaldehyde		0.15	0.000	0.000
	Propionaldehyde		0.05	0.000	0.001
Total:			0.000	0.002	
Safety Factor:			1.500	1.500	
Adjusted Total:			0.00	0.003	

Note:

The maximum capacity of Line 1 is 6,000 lbs/hr, however the maximum plastic resin input for the line is 3,000 lbs/hr. The other ingredients are inert fillers/additives that would not cause VOC emissions. Therefore, the PTE calculations for VOC/HAP are based on 3000 lbs/hr. The PTE calculations for particulate are based on 6,000 lbs/hr.

Emission Factor Source for Polypropylene: "Development of Emission Factors for Polypropylene Processing", Journal of Air and Waste Management Association, Volume 49, January 1999. Emission factor used was for random copolymer processing at 510°F. Actual melt temperature is approximately 300°F

Emission Factor Source for Polyethylene: "Development of Emission Factors for Polyethylene Processing", Journal of Air and Waste Management Association, Volume 46, January 1996. Emission factor used was for LDPE extrusion coating process, which is only valid within the temperature range of 500 °F - 600 °F. Actual melt temperature of the process is 370 °F, therefore 500 °F. was used since it was closest.

Emission Factor for Line 2: $Y = (M * T) + C$

Where:

Y = Emissions in pounds per million pounds of processed resin

T = Melt Temperature in °F.

M and C are constants calculated using test data.

IDEM's Compliance and Enforcement Branch has previously accepted the use of these polypropylene and polyethylene processing emission factors. A safety factor of 1.5 has been used for the potential to emit calculations.

Methodology:

Uncontrolled VOC Emission Rate (lb/hr) = Max Throughput (lb/hr) * 1/2 * Emission Factor (lb/1,000,000 lb) / 1,000,000

Uncontrolled HAP / Particulate Emission Rate (lb/hr) = Max Throughput (lb/hr) * Emission Factor (lb/1,000,000 lb) / 1,000,000

Uncontrolled Emission rate (ton/yr) = Uncontrolled Emission Rate (lb/hr) * 8,760 hrs x 1 ton / 2,000 lbs

Adjusted Total = Uncontrolled Emission Rate Total * Safety Factor

**Appendix A: Emissions Calculations
Potential Emissions From Line 1 Mixing**

Company Name: Cereplast, Inc.
Address City IN Zip: 2213 Killion Ave., Seymour, IN 47274
Permit Number: 071-29361-00044
Plt ID: 071-00044
Reviewer: Jason R. Krawczyk
Date: September 3, 2010

Mixer	Max Throughput	Emission Factor	Uncontrolled PM/PM10/PM2.5 Emission Rate	
	(lb/hr)		(lb/ton)	(lb/hr)
1	6000	0.19	0.57	2.50
Total:			0.57	2.50

Note:

Emission Factor for powder being loaded into the mixer is based on AP-42 Chapter 8.2 Table 8.2-1 for urea bagging. The emission factor has been previously accepted for a similar process used for Sabic Innovative Plastics US, LLC, Registration # 005-25552-00049, issued on December 11, 2007.

Methodology:

Uncontrolled Emission Rate (lb/hr) = Max Throughput (lb/hr) * Emission Factor (lb/ton) * 1 ton / 2,000 lbs

Uncontrolled Emission rate (ton/yr) = Uncontrolled Emission Rate (lb/hr) * 8,760 hrs x 1 ton / 2,000 lbs

Controlled Emission Rate (lb/hr) = Uncontrolled Emission Rate (lb/hr) * (1 - control efficiency)

Controlled Emission Rate (ton/yr) = Controlled Emission Rate (lb/hr) * 8,760 hrs x 1 ton / 2,000 lbs

**Appendix A: Emissions Calculations
Potential Emissions From Line 2 Mixing Process**

Company Name: Cereplast, Inc.
Address City IN Zip: 2213 Killion Ave., Seymour, IN 47274
Permit Number: 071-29361-00044
Pit ID: 071-00044
Reviewer: Jason R. Krawczyk
Date: September 3, 2010

Mixer	Max Throughput (lb/hr)	Emission Factor (lb/ton)	Before Baghouse PM/PM10/PM2.5 Emission Rate		Control Efficiency (%)	PM/PM10/PM2.5 Emission Rate	
			(lb/hr)	(ton/yr)		(lb/hr)	(ton/yr)
2	3000	0.19	0.29	1.25	95%	0.01	0.06
Total:			0.29	1.25		0.01	0.06

Note:

Emission Factor for powder being loaded into the mixer is based on AP-42 Chapter 8.2 Table 8.2-1 for urea bagging. The emission factor has been previously accepted for a similar process used for Sabic Innovative Plastics US, LLC, Registration # 005-25552-00049, issued on December 11, 2007.

Mixer 2 is controlled by integral baghouse CE01, therefore PTE is calculated after the control device.

Methodology:

Uncontrolled Emission Rate (lb/hr) = Max Throughput (lb/hr) * Emission Factor (lb/ton) * 1 ton / 2,000 lbs

Uncontrolled Emission rate (ton/yr) = Uncontrolled Emission Rate (lb/hr) * 8,760 hrs x 1 ton / 2,000 lbs

Controlled Emission Rate (lb/hr) = Uncontrolled Emission Rate (lb/hr) * (1 - control efficiency)

Controlled Emission Rate (ton/yr) = Controlled Emission Rate (lb/hr) * 8,760 hrs x 1 ton / 2,000 lbs

**Appendix A: Emissions Calculations
Potential Emissions From Material Handling / Conveying**

Company Name: Cereplast, Inc.
Address City IN Zip: 2213 Killion Ave., Seymour, IN 47274
Permit Number: 071-29361-00044
Plt ID: 071-00044
Reviewer: Jason R. Krawczyk
Date: September 3, 2010

Line 1

Description	Max Throughput (lb/hr)	Emission Factor (lb/ton)	Before Baghouse PM/PM10/PM2.5 Emission Rate		Control Efficiency (%)	PM/PM10/PM2.5 Emission Rate	
			(lb/hr)	(ton/yr)		(lb/hr)	(ton/yr)
Raw Material Conveyance Throughout Process	6000	0.19	0.57	2.50	95%	0.03	0.12
Finished Goods Conveyance	6000	0.19	0.57	2.50	95%	0.03	0.12
Total:			1.14	4.99		0.06	0.25

Line 2

Description	Max Throughput (lb/hr)	Emission Factor (lb/ton)	Before Baghouse PM/PM10/PM2.5 Emission Rate		Control Efficiency (%)	PM/PM10/PM2.5 Emission Rate	
			(lb/hr)	(ton/yr)		(lb/hr)	(ton/yr)
Raw Material Conveyance Throughout Process	3000	0.19	0.285	1.25	95%	0.01	0.06
Dryer/Crystalizer	3000	0.19	0.29	1.25	95%	0.01	0.06
Finished Goods Conveyance	3000	0.19	0.29	1.25	95%	0.01	0.06
Total:			0.86	3.74		0.04	0.19

Note:

Emission Factor for conveyance of pellets is based on AP-42 Chapter 8.2 Table 8.2-1 for urea bagging.

Methodology:

Uncontrolled Emission Rate (lb/hr) = Max Throughput (lb/hr) * Emission Factor (lb/ton) * 1 ton / 2,000 lbs

Uncontrolled Emission rate (ton/yr) = Uncontrolled Emission Rate (lb/hr) * 8,760 hrs x 1 ton / 2,000 lbs

Controlled Emission Rate (lb/hr) = Uncontrolled Emission Rate (lb/hr) * (1 - control efficiency)

Controlled Emission Rate (ton/yr) = Controlled Emission Rate (lb/hr) * 8,760 hrs x 1 ton / 2,000 lbs

**Appendix A: Emission Calculations
Fugitive Dust Emissions - Paved Roads**

Company Name: Cereplast, Inc.
Address City IN Zip: 2213 Killion Ave., Seymour, IN 47274
Permit Number: 071-29361-00044
PI# ID: 071-00044
Reviewer: Jason R. Krawczyk
Date: September 3, 2010

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (12/2003).

Vehicle Information (provided by source)

Type	Maximum number of vehicles	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle (entering plant) (one-way trip)	30.0	2.0	60.0	3.0	180.0	30	0.006	0.34	124.4
Vehicle (leaving plant) (one-way trip)	30.0	2.0	60.0	3.0	180.0	30	0.006	0.34	124.4
Trucks (entering plant) (one-way trip)	6.0	1.0	6.0	40.0	240.0	100	0.019	0.11	41.5
Trucks (leaving plant) (one-way trip)	6.0	1.0	6.0	40.0	240.0	100	0.019	0.11	41.5
Total			132.0		840.0			0.91	331.8

Average Vehicle Weight Per Trip = tons/trip
 Average Miles Per Trip = miles/trip

Unmitigated Emission Factor, $E_f = [k * (sL/2)^{0.65} * (W/3)^{1.5} - C]$ (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5
where k =	0.082	0.016	0.0024
W =	6.4	6.4	6.4
C =	0.00047	0.00047	0.00036
sL =	0.6	0.6	0.6

lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
 tons = average vehicle weight (provided by source)
 lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
 g/m² = Ubitiguous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer mon

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, $E_{ext} = E * [1 - (p/4N)]$

Mitigated Emission Factor, $E_{ext} = E_f * [1 - (p/4N)]$

where p = days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
 N = days per year

	PM	PM10	PM2.5
Unmitigated Emission Factor, E_f =	0.12	0.02	0.00
Mitigated Emission Factor, E_{ext} =	0.11	0.02	0.00

lb/mile
 lb/mile

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)
Vehicle (entering plant) (one-way trip)	0.01	0.00	0.00	0.01	0.00	0.00
Vehicle (leaving plant) (one-way trip)	0.01	0.00	0.00	0.01	0.00	0.00
Trucks (entering plant) (one-way trip)	0.002	0.000	0.000	0.002	0.000	0.000
Trucks (leaving plant) (one-way trip)	0.002	0.000	0.000	0.002	0.000	0.000
	0.02	0.00	0.00	0.02	0.00	0.00

Methodology

Total Weight driven per day (ton/day) = [Maximum Weight Loaded (tons/trip)] * [Maximum trips per day (trip/day)]
 Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip)] / [5280 ft/mile]
 Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
 Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
 Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
 Unmitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Unmitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
 Mitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)

Abbreviations

PM = Particulate Matter
 PM10 = Particulate Matter (<10 um)
 PM2.5 = Particle Matter (<2.5 um)
 PTE = Potential to Emit



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Mark Barton
Cereplast, Inc.
2213 Killion Ave
Seymour, IN 47274

DATE: September 23, 2010

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Exemption
071-29361-00044

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

Final Applicant Cover letter.dot 11/30/07

Mail Code 61-53

IDEM Staff	CDENNY 9/23/2010 Cereplast, Inc. 071-29361-00044 (final)		Type of Mail: CERTIFICATE OF MAILING ONLY	AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204		

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee
											Remarks
1		Mark Barton Cereplast, Inc. 2213 Killion Ave Seymour IN 47274 (Source CAATS)									
2		Jackson County Commissioner Jackson County Courthouse Brownstown IN 47220 (Local Official)									
3		Mr. Randy Brown Plumbers & Steam Fitters Union, Local 136 2300 St. Joe Industrial Park Dr Evansville IN 47720 (Affected Party)									
4		Mr. Tome Earnhart 3960 N. CR 300 W. North Vernon IN 47265 (Affected Party)									
5		Seymour City Council and Mayors Office 301 North Chestnut Street Seymour IN 47274 (Local Official)									
6		Jackson County Health Department 801 West 2nd Street Seymour IN 47274-2711 (Health Department)									
7		Mr. David Howard Cornerstone Environmental, Health & Safety, Inc. 880 Lennox Court Zionsville IN 46077 (Consultant)									
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