



9/4/2014

Rod Lynch  
Solvay USA, Inc.  
4775 Paddock Road  
Cincinnati, OH 45229

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE  
Facility ID: 1431070001  
Permit Number: P0116307  
Permit Type: OAC Chapter 3745-31 Modification  
County: Hamilton

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

**How to appeal this permit**

The issuance of this PTIO is a final action of the Director 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, made payable to "Ohio Treasurer Josh Mandel," 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  
77 South High Street, 17th Floor  
Columbus, OH 43215

Certified Mail

Yes	TOXIC REVIEW
Yes	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MODELING SUBMITTED
Yes	SYNTHETIC MINOR TO AVOID TITLE V
Yes	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

## **How to save money, reduce pollution and reduce energy consumption**

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: [www.ohioairquality.org/clean\\_air](http://www.ohioairquality.org/clean_air)

## **How to give us feedback on your permitting experience**

Please complete a survey at [www.epa.ohio.gov/survey.aspx](http://www.epa.ohio.gov/survey.aspx) and give us feedback on your permitting experience. We value your opinion.

## **How to get an electronic copy of your permit**

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word form at or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, [www.epa.ohio.gov/dapc](http://www.epa.ohio.gov/dapc) by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Southwest Ohio Air Quality Agency at (513)946-7777 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Erica R. Engel-Ishida, Interim Manager  
Permit Issuance and Data Management Section, DAPC

Cc: SWOAQA



**FINAL**

**Division of Air Pollution Control  
Permit-to-Install and Operate  
for  
Solvay USA, Inc.**

Facility ID:	1431070001
Permit Number:	P0116307
Permit Type:	OAC Chapter 3745-31 Modification
Issued:	9/4/2014
Effective:	9/4/2014
Expiration:	6/11/2019





**Division of Air Pollution Control  
Permit-to-Install and Operate**

for  
Solvay USA, Inc.

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## Authorization

Facility ID: 1431070001  
Application Number(s): A0049994  
Permit Number: P0116307  
Permit Description: Chapter 31 modification for increased annual production of acetate grade alumina and hi-NOx products, which will result in increased allowable annual emissions of NOx, CO, and SO2. Short term emissions are unchanged.  
Permit Type: OAC Chapter 3745-31 Modification  
Permit Fee: \$500.00  
Issue Date: 9/4/2014  
Effective Date: 9/4/2014  
Expiration Date: 6/11/2019  
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

Solvay USA, Inc.  
4775 PADDOCK RD.  
Cincinnati, OH 45229

of a Permit-to-Install and Operate for the emissions unit(s) identified on the following page.

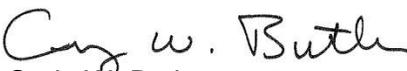
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Southwest Ohio Air Quality Agency  
250 William Howard Taft Rd.  
Cincinnati, OH 45219  
(513)946-7777

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (emissions unit(s)) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

  
Craig W. Butler  
Director



## Authorization (continued)

Permit Number: P0116307

Permit Description: Chapter 31 modification for increased annual production of acetate grade alumina and hi-NOx products, which will result in increased allowable annual emissions of NOx, CO, and SO2. Short term emissions are unchanged.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

<b>Emissions Unit ID:</b>	<b>P019</b>
Company Equipment ID:	Rotary Calciner
Superseded Permit Number:	P0105896
General Permit Category and Type:	Not Applicable



**Final Permit-to-Install and Operate**  
Solvay USA, Inc.  
**Permit Number:** P0116307  
**Facility ID:** 1431070001  
**Effective Date:** 9/4/2014

## **A. Standard Terms and Conditions**



**1. What does this permit-to-install and operate ("PTIO") allow me to do?**

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

**2. Who is responsible for complying with this permit?**

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

**3. What records must I keep under this permit?**

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

**4. What are my permit fees and when do I pay them?**

There are two fees associated with permitted air contaminant sources in Ohio:

PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. For facilities that are permitted as synthetic minor sources, the fee schedule is adjusted annually for inflation. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

**5. When does my PTIO expire, and when do I need to submit my renewal application?**

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is



very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

**6. What happens to this permit if my project is delayed or I do not install or modify my source?**

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

**7. What reports must I submit under this permit?**

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

**8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?**

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions of this permit will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

**9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?**

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.



**10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?**

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the [DO/LAA] in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

**11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?**

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

**12. What happens if one or more emissions units operated under this permit is/are shut down permanently?**

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emission unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.



**13. Can I transfer this permit to a new owner or operator?**

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

**14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?**

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

**15. What happens if a portion of this permit is determined to be invalid?**

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.



**Final Permit-to-Install and Operate**  
Solvay USA, Inc.  
**Permit Number:** P0116307  
**Facility ID:** 1431070001  
**Effective Date:** 9/4/2014

## **B. Facility-Wide Terms and Conditions**



**Final Permit-to-Install and Operate**

Solvay USA, Inc.

**Permit Number:** P0116307

**Facility ID:** 1431070001

**Effective Date:** 9/4/2014

1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
  - a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
    - (1) None.
  - b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
    - (1) None.



**Final Permit-to-Install and Operate**  
Solvay USA, Inc.  
**Permit Number:** P0116307  
**Facility ID:** 1431070001  
**Effective Date:** 9/4/2014

## **C. Emissions Unit Terms and Conditions**



1. P019, Rotary Calciner

Operations, Property and/or Equipment Description:

Rotary Calciner

- a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
  - (1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
    - a. d)(2), d)(3), d)(4), d)(5), and e)(4).
  - (2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
    - a. b)(1)c., c)(1), c)(2), d)(1), and e)(1).
- b) Applicable Emissions Limitations and/or Control Requirements
  - (1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective 11/30/01  ORC 3704.03(T)	The permittee shall install fabric filter baghouses that are designed to meet an emission rate of 0.02 gr/dscf of Particulate Emissions (PE) and Particulate matter 10 microns and less in diameter (PM10).  Organic compound (OC) emissions from the natural gas burner shall not exceed 0.02 ton per month averaged over a twelve month rolling period.  See b)(2)a.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) as effective 12/01/06  ORC 3704.03(T)	See b)(2)b.
c.	OAC rule 3745-31-05(D) Synthetic Minor to avoid Non-	Nitrogen oxide (NOx) emissions from the indirect rotary calciner and combustion of



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	Attainment New Source Review	natural gas in this emissions unit shall not exceed 44.24 tons per year, based on a rolling 12-month summation.  See c)(1) and c)(2).
d.	ORC 3704.03(T) OAC rule 3745-31-05(A)(3)	Sulfur dioxide (SO <sub>2</sub> ) emissions from the indirect rotary calciner shall not exceed 1.88 tons per month averaged over a twelve month rolling period.  Carbon monoxide (CO) emissions from the indirect rotary calciner shall not exceed 3.62 tons per month averaged over a twelve month rolling period.
e.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
f.	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).  Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then this emissions unit shall not exceed 4.63 pounds/hour of PE.
g.	OAC rule 3745-17-10(B)(1)	PE from the combustion of natural gas in this emissions unit shall not exceed 0.020 lb./ million BTU heat input.
h.	OAC rule 3745-18-06(E)(2)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to ORC 3704.03(T) and OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutant less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the



revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limits/control measures no longer apply.

b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

i. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3)(b) do not apply to the following criteria pollutants from this air contaminant source since the controlled potential to emit is less than ten tons per year:

(a) The permittee shall install fabric filter baghouses that are designed to meet an emission rate of 0.02 gr/dscf of Particulate Emissions (PE).

(b) Organic compound (OC) emissions from the natural gas burner shall not exceed 0.02 ton per month averaged over a twelve month rolling period.

c) Operational Restrictions

(1) The maximum annual metal oxide production rate for all metal oxides for this emissions unit shall not exceed 7500 tons, based upon a rolling, 12-month summation of the production rates. The permittee has existing records to demonstrate compliance with this requirement upon issuance of this permit.

(2) The maximum annual production rate of high NO<sub>x</sub> grade metal oxides for this emissions unit shall not exceed 1500 tons, based upon a rolling, 12-month summation of the production rates. The permittee has existing records to demonstrate compliance with this requirement upon issuance of this permit.

(3) Emissions shall be vented to a fabric filter at all times when the emissions unit is in operation.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain the following records each month:

a. The high NO<sub>x</sub> grade metal oxides production rate for each month.

b. The total metal oxides production rate for each month.

c. The monthly NO<sub>x</sub> emissions, in tons.

d. The rolling, 12-month summation of the high NO<sub>x</sub> grade metal oxide production rate.

e. The rolling, 12-month summation of the total metal oxide production rate.



- f. The rolling, 12-month summation of the NO<sub>x</sub> emissions, in tons.
- (2) The federally enforceable permit-to-install and operate (FEPTIO) application for this/these emissions unit(s), P019, was evaluated based on the actual materials and the design parameters of the emissions unit's(s') exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:
- a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):
- i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or
- ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.
- b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).
- c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "X" hours per day and "Y" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

$$TLV/10 \times 8/X \times 5/Y = 4 TLV/XY = MAGLC$$

- d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Toxic Contaminant: Ammonia.



TLV (mg/m<sup>3</sup>): 17 mg/m<sup>3</sup>

Maximum Hourly Emission Rate (lbs/hr): 1.2

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 54.3

MAGLC (ug/m<sup>3</sup>): 405

The permittee, has demonstrated that emissions of ammonia, from emissions unit(s) P019, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

- (3) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were used in the predicted 1-hour maximum ground-level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, 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 new toxic air contaminant with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and
  - c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Toxic Air Contaminant Statute" 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 a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final FEPTIO prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

- (4) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):



- a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
  - b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);
  - c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and
  - d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.
- (5) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.
- e) Reporting Requirements
- (1) The permittee shall submit quarterly deviation (excursion) reports that identify:
    - a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:
      - i. The rolling, 12-month summation of the high NO<sub>x</sub> grade metal oxide production rate.
      - ii. The rolling, 12-month summation of the total metal oxide production rate.
      - iii. The rolling, 12-month summation of the NO<sub>x</sub> emissions, in tons.
    - b. the probable cause of each deviation (excursion)
    - c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
    - d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.



The quarterly reports shall be submitted each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit.
- (3) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the District Office or Local Air Agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (4) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the annual Permit Evaluation Report (PER). If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

f) **Testing Requirements**

- (1) Compliance with the Emissions Limitations and/or Control Equipment Requirements specified in section in b) of these terms and conditions shall be determined in accordance with the following methods:

a. **Emission Limitation:**

The permittee shall install fabric filter baghouses that are designed to meet an emission rate of 0.02 gr/dscf of Particulate Emissions (PE) and Particulate matter 10 microns and less (PM10).



Applicable Compliance Method:

Compliance with the design control efficiency requirement shall be based on the company supplied emission calculations and design estimate as supplied in the application for FEPTIO P0116307, submitted February 14, 2014.

b. Emission Limitations:

0.020 lb./MMBTU of PE from the combustion of natural gas in the indirect rotary calciner.

Applicable Compliance Method:

If required, emission testing shall be performed to determine compliance with the particulate emission limitation. The testing shall be conducted using the following method: Method 5 of 40 CFR, Part 60, Appendix A.

c. Emission Limitations:

4.63 pounds/hour of PE from the calciner feed hopper and indirect rotary calciner.

Applicable Compliance Method:

The hourly PE rate is based on the emission unit's potential to emit. The hourly potential to emit was calculated by:  $[(0.0188 \text{ grain/ft}^3) \times (800 \text{ ft}^3/\text{min}) \times (60 \text{ min/hr}) \times (1 \text{ lb}/7000 \text{ grains})] + [(0.02 \text{ grain/ft}^3) \times (3500 \text{ ft}^3/\text{min}) \times (60 \text{ min/hr}) \times (1 \text{ lb}/7000 \text{ grains})]$ .

d. Emission Limitations:

Nitrogen oxide (NOx) emissions from the indirect rotary calciner and combustion of natural gas in this emissions unit shall not exceed 44.24 tons per year, based on a rolling 12-month summation.

Applicable Compliance Method:

The hourly nitrogen oxide emission rate from the indirect rotary calciner was calculated by:  $(0.025 \text{ lb. of NOx/lb. of high NOx product}) \times (2400 \text{ lbs. of high NOx product/hr})$  added to  $(0.1 \text{ lb. of NOx/MMBTU}) \times (9.9 \text{ MMBTU/hr.})$ . The annual nitrogen oxide emission rate from the indirect rotary calciner was calculated by:  $\{(3,000,000 \text{ lbs. of high NOx product/yr}) \times (0.025 \text{ lb. of NOx/lb. of high NOx product}) \times (1 \text{ ton}/2000 \text{ lbs})\} + \{(12,000,000 \text{ lbs. of low NOx product/yr.}) \times (0.0004 \text{ lb. of NOx/lb. of low NOx product}) \times (1/2000 \text{ lbs.})\}$  added to  $(0.1 \text{ lb./MMBTU}) \times (9.9 \text{ MMBTU/hr.}) \times (8760 \text{ hrs./yr.}) \times (1 \text{ ton}/2000 \text{ lbs.})$ . Compliance with the annual rolling 12-month summation of NOx emissions will be determined by the record keeping in d)(1).



e. Emission Limitation:

Sulfur dioxide (SO<sub>2</sub>) emissions from the indirect rotary calciner shall not exceed 1.88 tons per month averaged over a twelve month rolling period

Applicable Compliance Method:

The monthly allowable was established thru company's research and development program for this emissions unit which determined an emission factor of 6 pounds of SO<sub>2</sub> per ton of product. This factor, multiplied by the rolling, 12-month summation of the total metal oxide production rate, divided by 12 months/year and 2000 lbs. per ton = tons of SO<sub>2</sub> per month averaged over a twelve month rolling period.

If required, emission testing shall be performed to determine compliance with the SO<sub>2</sub> emission limitation. The testing shall be conducted using the following method: Method 6 of 40 CFR, Part 60, Appendix A.

f. Emission Limitation:

Carbon monoxide (CO) emissions from the indirect rotary calciner shall not exceed 3.62 tons per month averaged over a twelve month rolling period.

Applicable Compliance Method:

The monthly emissions from alumina product were established through the company's research and development program for this emissions unit which determined an emission factor of 10.6 pounds of CO per ton of product. This factor, multiplied by the rolling, 12-month summation of the total metal oxide production rate, divided by 12 months/year and 2000 lbs per ton = tons CO per month averaged over a twelve month rolling period.

The monthly CO emissions from the natural gas burner are calculated by  $(84 \text{ lbs of CO/MMft}^3)/(1000 \text{ BTU/ft}^3)$ . The monthly particulate emission rate averaged over a twelve month rolling period from the natural gas burner was calculated by:  $(0.084 \text{ lb/MMBTU}) \times (9.9 \text{ MMBTU/hr}) \times (8760 \text{ hrs/year}) \times (\text{year}/12 \text{ months})$ .

The monthly alumina product CO plus the monthly Burner CO = CO from indirect rotary calciner.

g. Emission Limitation:

Organic compound (OC) emissions from the natural gas burner shall not exceed 0.02 ton per month averaged over a twelve month rolling period.

Applicable Compliance Method:

The monthly OC emission rate averaged over a twelve month rolling period from the natural gas burner was calculated by:  $(5.5 \text{ lbs. of OC/MMft}^3)/(1000 \text{ BTU/ft}^3)$ . The monthly particulate emission rate averaged over a twelve month rolling



**Final Permit-to-Install and Operate**

Solvay USA, Inc.

**Permit Number:** P0116307

**Facility ID:** 1431070001

**Effective Date:** 9/4/2014

period from the natural gas burner was calculated by:  $(0.0055 \text{ lb./MMBTU}) \times (9.9 \text{ MMBTU/hr.}) \times (8760 \text{ hrs./year}) \times (\text{year}/12 \text{ months})$ .

h. Emission Limitations:

Visible particulate emissions from the stack shall not exceed 20 percent opacity as a six-minute average, except as specified by rule.

Applicable Compliance Method:

Compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with U.S. EPA Method 9.

g) Miscellaneous Requirements

(1) None.