



John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Scott J. Nally, Director

9/26/2013

Certified Mail

Mark Arnold  
Owens Corning Insulating Systems, LLC  
400 Case Ave.  
Newark, OH 43055-5893

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL  
Facility ID: 0145020185  
Permit Number: P0113568  
Permit Type: Administrative Modification  
County: Licking

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. 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 PTI 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

## **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 format 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 Ohio EPA DAPC, Central District Office at (614)728-3778 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael W. Ahern, Manager

Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA  
Ohio EPA-CDO



**FINAL**

**Division of Air Pollution Control  
Permit-to-Install  
for  
Owens Corning Insulating Systems, LLC**

Facility ID:	0145020185
Permit Number:	P0113568
Permit Type:	Administrative Modification
Issued:	9/26/2013
Effective:	9/26/2013





**Division of Air Pollution Control**  
**Permit-to-Install**  
for  
Owens Corning Insulating Systems, LLC

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## Authorization

Facility ID: 0145020185  
Facility Description: Mineral Wool  
Application Number(s): M0002153  
Permit Number: P0113568  
Permit Description: OCIS is requesting to increase the allowable VOC emission limits for the curing and cooling sections when employing the non-phenolic binder to incorporate the results of recent stack testing.  
Permit Type: Administrative Modification  
Permit Fee: \$1,200.00  
Issue Date: 9/26/2013  
Effective Date: 9/26/2013

This document constitutes issuance to:

Owens Corning Insulating Systems, LLC  
400 CASE AVE.  
NEWARK, OH 43055-5893

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

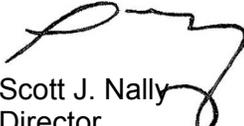
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Central District Office  
50 West Town Street, 6th Floor  
P.O. Box 1049  
Columbus, OH 43216-1049  
(614)728-3778

The above named entity is hereby granted a Permit-to-Install for the 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 emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency



Scott J. Nally  
Director



## Authorization (continued)

Permit Number: P0113568  
Permit Description: OCIS is requesting to increase the allowable VOC emission limits for the curing and cooling sections when employing the non-phenolic binder to incorporate the results of recent stack testing.

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>P027</b>
Company Equipment ID:	C-4 Forming
Superseded Permit Number:	P0107674
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P055</b>
Company Equipment ID:	C-4 Curing
Superseded Permit Number:	P0107674
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P073</b>
Company Equipment ID:	C-4 Cooling
Superseded Permit Number:	P0107674
General Permit Category and Type:	Not Applicable



**Final Permit-to-Install**  
Owens Corning Insulating Systems, LLC  
**Permit Number:** P0113568  
**Facility ID:** 0145020185  
**Effective Date:** 9/26/2013

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



## **1. Federally Enforceable Standard Terms and Conditions**

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
  - (1) Standard Term and Condition A.2.a), Severability Clause
  - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
  - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
  - (4) Standard Term and Condition A.9., Reporting Requirements
  - (5) Standard Term and Condition A.10., Applicability
  - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
  - (7) Standard Term and Condition A.14., Public Disclosure
  - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
  - (9) Standard Term and Condition A.16., Fees
  - (10) Standard Term and Condition A.17., Permit Transfers

## **2. Severability Clause**

- a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

## **3. General Requirements**

- a) The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.



- b) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.
- c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d) This permit does not convey any property rights of any sort, or any exclusive privilege.
- e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

#### **4. Monitoring and Related Record Keeping and Reporting Requirements**

- a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
  - (1) The date, place (as defined in the permit), and time of sampling or measurements.
  - (2) The date(s) analyses were performed.
  - (3) The company or entity that performed the analyses.
  - (4) The analytical techniques or methods used.
  - (5) The results of such analyses.
  - (6) The operating conditions existing at the time of sampling or measurement.
- b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
  - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Central District Office.



- (2) Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Central District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.
  - (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted (i.e., postmarked) to the Ohio EPA DAPC, Central District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
  - (4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

## **5. Scheduled Maintenance/Malfunction Reporting**

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Ohio EPA DAPC, Central District Office in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

## **6. Compliance Requirements**

- a) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.
- b) Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.



- c) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
  - (1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
  - (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
  - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - (4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- d) The permittee shall submit progress reports to the Ohio EPA DAPC, Central District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
  - (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - (2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

## **7. Best Available Technology**

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

## **8. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

## **9. Reporting Requirements**

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Central District Office.
- b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have



been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Ohio EPA DAPC, Central District Office. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

## **10. Applicability**

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

## **11. Construction of New Sources(s) and Authorization to Install**

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.
- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., 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) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in Ohio EPA's "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).



- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., 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). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

## **12. Permit-To-Operate Application**

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

## **13. Construction Compliance Certification**

The applicant shall identify the following dates in the online facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

## **14. Public Disclosure**

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.



**15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations**

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly (i.e., postmarked), by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

**16. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

**17. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in Air Services once the transfer is legally completed. The change must be submitted through Air Services within thirty days of the ownership transfer date.

**18. Risk Management Plans**

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

**19. Title IV Provisions**

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.



**Final Permit-to-Install**  
Owens Corning Insulating Systems, LLC  
**Permit Number:** P0113568  
**Facility ID:** 0145020185  
**Effective Date:** 9/26/2013

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



1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
  - a) Section B.3.
2. OAC rule 3745-31-10(A)
  - a) [OAC rule 3745-31-10(A)(1)]

The permittee shall document and maintain a record of the following information and shall have the record on-file before beginning actual construction:

    - (1) A description of the NSR project;
    - (2) Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the NSR project; and
    - (3) A description of the applicability test used to determine that the NSR project is not a major modification for any regulated NSR pollutant, including baseline actual emissions, the projected actual emissions, the amount of "could have accommodated" emissions excluded under paragraph (AAAAA)(1)(c) of rule 3745-31-01 of the Administrative Code and an explanation for why such amount was excluded, and any netting calculations, if applicable.
  - b) [OAC rule 3745-31-10(A)(2)]

The information required in OAC 3745-31-10(A)(1) was documented and submitted to the Ohio EPA within PTI Application A0040909.
  - c) [OAC rule 3745-31-10(A)(3)]

The permittee shall monitor and calculate the emissions of VOC from the emission units affected by the binder change project as identified within the associated Permit to Install Application A0040909 and subsequent modifications (M0001418, M0002152 & M0002153) (i.e., P027, P055, P073, P031, P066, and P128), and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change.
  - d) [OAC rule 3745-31-10(A)(5)]

The permittee shall submit a report to the director if the actual annual VOC emissions, in tons per year as calculated pursuant to OAC 3745-31-10(A)(3), from the binder change project, are greater than or equal to 107.8 tons per year VOC (i.e., exceed the baseline actual emissions increase by a significant amount) and if such emissions differ from the preconstruction projection as documented and maintained pursuant to OAC rule 3745-31-10(A)(1). Such reports shall be submitted to the director within sixty (60) days after the end of such year. The report shall contain the following:

    - (1) The name, address, and telephone number of the major stationary source;
    - (2) The annual emissions as calculated pursuant to OAC rule 3745-31-10(A)(3); and
    - (3) Any other information that the owner or operator wishes to include in the report (e.g., an explanation as to why the emission differ from the preconstruction projection).



3. Toxic Air Contaminant Statute, ORC 3704.03(F)

a) The permit-to-install (PTI) modification applications (M0001418, M0002152 & M0002153) for these emissions units, P027, P031, P055, P066, P073, and P128, was evaluated based on the actual materials and the design parameters of the emissions units' 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:

(1) 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):

- (a) 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
- (b) 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.

(2) The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

(3) 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., 24 hours per day and 7 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):

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

(4) The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year):

Toxic Contaminant: formic acid

TLV (mg/m3): 9.41

Maximum Hourly Emission Rate (lbs/hr): 1.67lb/hr formic acid

Predicted 1-Hour Maximum Ground-Level Concentration (µg/m3): 28.4



MAGLC ( $\mu\text{g}/\text{m}^3$ ): 224.1

Toxic Contaminant: diethanolamine

TLV ( $\text{mg}/\text{m}^3$ ): 1.0

Maximum Hourly Emission Rate (lbs/hr): 1.60 lb/hr diethanolamine

Predicted 1-Hour Maximum Ground-Level Concentration ( $\mu\text{g}/\text{m}^3$ ): 11.5

MAGLC ( $\mu\text{g}/\text{m}^3$ ): 23.8

The permittee, has demonstrated that emissions of formic acid and diethanolamine, from emissions units P027, P031, P055, P066, P073, and P128 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).

- b) Prior to making any physical changes to or changes in the method of operation of the emissions units, 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:
- (1) 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;
  - (2) 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
  - (3) 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 PTI 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.

- c) 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):



- (1) 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.);
  - (2) 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);
  - (3) 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
  - (4) 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.
- d) 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.
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 quarterly deviation (excursion) reports. 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.



**Final Permit-to-Install**  
Owens Corning Insulating Systems, LLC  
**Permit Number:** P0113568  
**Facility ID:** 0145020185  
**Effective Date:** 9/26/2013

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



**1. P027, C-4 Forming**

**Operations, Property and/or Equipment Description:**

13.97 tons per hour, C-4 fiber and pack forming with cyclonic separators. Terms in this permit supersede those identified in PTI P0107674 issued June 16, 2011.

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (1) None
- b) Applicable Emissions Limitations and/or Control Requirements
  - (1) The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	<p>When employing phenolic binder, volatile organic compound (VOC) emissions shall not exceed 30.11 pounds per hour.</p> <p>When employing non-phenolic binder, VOC emissions shall not exceed 11.5 pounds per ton binder solids applied.</p> <p>The following limits apply when employing either phenolic or non-phenolic binder:</p> <p>Filterable and condensable particulate emissions (PE) shall not exceed 28.00 pounds per hour and 122.7 tons per year.</p> <p>Nitrogen oxides (NOX) emissions shall not exceed 4.37 pounds per hour and 19.2 tons per year.</p> <p>Sulfur dioxide (SO2) emissions shall not exceed 5.63 pounds per hour and 24.7 tons per year.</p> <p>Carbon monoxide (CO) emissions shall not exceed 15.29 pounds per hour and 67.0 tons per year.</p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>Formaldehyde emissions shall not exceed 4.0 pounds per hour and 17.6 tons per year.</p> <p>Methanol emissions shall not exceed 13.0 pounds per hour.</p> <p>Phenol emissions shall not exceed 13.0 pounds per hour.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-31-05(D) &amp; (F), 40 CFR 60, Subpart PPP, and 40 CFR 63, Subpart NNN.</p> <p>See b)(2)a, and c)(1),(2), and (3).</p>
b.	OAC rule 3745-31-05(F)	Ammonia emissions shall not exceed 33 pounds per hour and 144.6 tons per year.
c.	OAC rule 3745-31-05(D)	<p>Methanol emissions from P027, P055 and P073 shall not exceed 26.34 tons per rolling 12-month summation.</p> <p>Phenol emissions from P027, P055 and P073 shall not exceed 26.46 tons per rolling 12-month summation.</p> <p>Volatile organic compound emissions from P027, P055 and P073 shall not exceed 74.67 tons per rolling 12-month summation.</p> <p>See c)(4), (5), and (6).</p>
d.	See OAC rule 3745-17-07(A)(1)	Visible particulate emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule.
e.	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).
f.	OAC rule 3745-18-06(E)(2)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).



g.	40 CFR Part 60, Subpart PPP (40 CFR 60.680-60.685)	11.0 lb particulate matter per ton of glass pulled (i.e., bare glass delivered to P027)  See b)(2)b.
h.	40 CFR Part 60, Subpart A	General Provisions in 40 CFR 60.1-60.19
i.	40 CFR Part 63 Subpart NNN (40 CFR 63.1380-63.1399) [In accordance with 40 CFR 63.1380(b)(2), this emissions unit serves a rotary spin wool fiberglass manufacturing line subject to the emissions limitations/control measures specified in this section when producing a bonded wool fiberglass building insulation product.]	0.6 kg of formaldehyde per megagram (1.2 lb of formaldehyde per ton) of glass pulled for P027, P055, and P073 combined.  See b)(2)c.
j.	40 CFR Part 63, Subpart A (40 CFR 63.1380(d))	Table 1 to Subpart NNN of 40 CFR Part 63 – Applicability of General Provisions to Subpart NNN shows which parts of the General Provisions in 40 CFR 63.1-63.15 apply.

(2) Additional Terms and Conditions

- a. Filterable particulate emissions shall not exceed 21.7 lbs/hr per the 1980 Consent Decree, State of Ohio versus the Owens-Corning Fiberglass Corporation.
- b. In accordance with 40 CFR 60.682, on and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 5.5 kg/Mg (11.0 lb/ton) of glass pulled (i.e., bare glass delivered to P027).  
  
In accordance with 40 CFR 60.681, "Manufacturing line" means the manufacturing equipment comprising the forming section, where molten glass is fiberized and a fiberglass mat is formed; the curing section, where the binder resin in the mat is thermally "set" and the cooling section where the mat is cooled.
- c. The emissions limit required pursuant to 40 CFR 63.1382(a)(2) for rotary spin manufacturing lines applies to P027 only when the following conditions are met:
  - i. Phenol-formaldehyde binder is employed in the C-4 line to produce a bonded wool fiberglass building insulation that:
    - (a) Has a loss on ignition (LOI) of less than 8 percent, and



- (b) Has a density of less than 32 kilograms per cubic meter (kg/m<sup>3</sup>) (2 pounds per cubic foot) (lb/ft<sup>3</sup>)

When utilizing a non-phenolic binder, the C-4 line is not an affected source pursuant to 40 CFR 63.1380(b)(2) since it is not producing a “bonded” wool fiberglass insulation product as defined in 40 CFR 63.1381.

c) Operational Restrictions

- (1) The phenol formaldehyde resin delivered to this emissions unit shall not exceed a free methanol content of 1%, by weight.
- (2) The permittee shall burn only natural gas in this emission unit
- (3) The permittee shall vent all of the emissions from this emissions unit through the following particulate management units: a process drop out box and cyclonic separators.
- (4) The combined maximum amount of methanol and phenol in the resin delivered to P027 and P031 combined that is or will be employed in a phenolic binder shall not exceed 156 tons, based upon a rolling, 12-month summation of the resin delivered.
- (5) The maximum amount of methanol and phenol in the resin delivered to P027 that is or will be employed in a phenolic binder shall not exceed 60.7 tons, based upon a rolling, 12-month summation of the resin delivered.
- (6) In order to ensure that VOC emissions from P027, P055, and P073 do not exceed 74.67 tons per rolling 12-month summation, the total amount of binder solids employed in P027, P055, and P073 shall not exceed the amount determined based on the following equation, in tons, based upon a rolling, 12-month summation of the tons of binder solids that are employed in P027, P055, and P073:

$$P_T \leq \frac{149,340 - \sum_{i=1}^n [P_{PF_i} (EF_{PF_i} - EF_{NP})]}{EF_{NP}}$$

Where:

- n = number of products/product families capable of being produced when utilizing the phenolic binder (e.g., Product Family A, Product Family B, etc.)
- P<sub>T</sub> = total binder solids employed in P027, P055, and P073 (as part of either phenolic or non-phenolic binder), tons
- EF<sub>PF</sub> = VOC emission factor associated with the use of phenolic binder in P027, P055, and P073 for product/product family i, lb VOC/ton binder solids applied
- P<sub>PF</sub> = Phenolic binder solids usage in P027, P055, and P073 for product/product family i, tons



- $EF_{NP}$  = VOC emission factor for non-phenolic binder, lb VOC/ton binder solids. Use 17.0 lb/ton or the value determined from the most recent stack test performed while employing the non-phenolic binder
- 149,340 = lbs VOC/yr limit equivalent to the 74.67 tons/yr VOC limit required in b)(1)d.

For the purposes of this PTI, “binder solids” are defined as any material in a phenolic or non-phenolic binder formulation that is not water

- (7) In accordance with 40 CFR 60.684, after completion of the performance test, the permittee shall maintain the water flow rate (gpm) to the drop-out box to no less than 70 percent of the lowest value and no more than 130 percent of the highest value recorded during the most recent performance test when the emissions unit is in operation, except as specified in the U.S. EPA approved alternative monitoring request.
  - (8) See 40 CFR Part 60, Subpart PPP (40 CFR 60.680-685), except as specified in the U.S. EPA approved alternative monitoring request.
  - (9) See 40 CFR Part 63, Subpart NNN (40 CFR 63.1380-1399), as applicable per b)(2)c.
- d) Monitoring and/or Record keeping Requirements
- (1) The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
    - a. the color of the emissions;
    - b. whether the emissions are representative of normal operations;
    - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
    - d. the total duration of any visible emission incident; and
    - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.



- (2) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emission unit.
- (3) The permittee shall maintain monthly records of the following information:
  - a. the tons of resin delivered to P027 that is or will be employed in a phenolic binder;
  - b. the methanol concentration (%) in resin delivered to P027 that is or will be employed in a phenolic binder (as a weighted average of the methanol contents of all the resins employed, as taken from the resin delivery certificates received during the year);
  - c. the phenol concentration (%) in resin delivered to P027 that is or will be employed in a phenolic binder (as a weighted average of the phenol contents of all the resins employed, as taken from the resin delivery certificates received during the year);
  - d. total monthly methanol delivered to P027 that is or will be employed in a phenolic binder, in tons, calculated as  $a \times b$ ;
  - e. total monthly phenol delivered to P027 that is or will be employed in a phenolic binder, in tons, calculated as  $a \times c$ ;
  - f. total monthly tons of methanol and phenol in the resin delivered to P027, calculated as  $d + e$ ;
  - g. the rolling, 12-month summation of the tons of methanol and phenol in the resin delivered to P027;
  - h. total monthly methanol and phenol delivered to P027 and P031, combined, in tons that is or will be employed in a phenolic binder, calculated as follows:  $d + e + M_{P031} + P_{P031}$  where M equals methanol and P equals phenol; and
  - i. the rolling, 12-month summation of the tons of methanol and phenol in the resin delivered to P027 and P031, combined, that is or will be employed in a phenolic binder.
- (4) The permittee shall maintain monthly records of the following information:
  - a. monthly methanol emitted from P027, P055, and P073 when employing a phenolic binder, calculated as follows:  $d(3)d \times [0.87 \text{ (fraction of delivered methanol estimated to be emitted over the entire C-4 manufacturing line)}]$ ;
  - b. monthly phenol emitted from P027, P055, and P073 when employing a phenolic binder, calculated as follows:  $d(3)e \times [0.87 \text{ (fraction of delivered phenol estimated to be emitted over the entire C-4 manufacturing line)}]$ ;



- c. total monthly hours of operations for P027 when employing a phenolic binder;
  - d. monthly formaldehyde emissions from P027 ( $F_{P027}$ ) when employing a phenolic binder, calculated as follows:  $4 \text{ lbs/hr (hourly maximum)} \times c / 2000$ ;
  - e. total tons of non-phenolic binder solids employed in P027;
  - f. methanol emitted from P027, P055, and P073 when employing a non-phenolic binder, calculated as follows:  $e / 2000 \times 2.35 \text{ lb methanol/ton binder solids (maximum)}$  or emission factor determined from the most recent stack test performed while employing the non-phenolic binder;
  - g. phenol emitted from P027, P055, and P073 when employing a non-phenolic binder, calculated as follows:  $e / 2000 \times 0.402 \text{ lb phenol/ton binder solids (maximum)}$  or emission factor determined from the most recent stack test performed while employing the non-phenolic binder;
  - h. total methanol emissions from phenolic and non-phenolic binders employed in P027, P055, and P073, calculated as follows:  $a + f$ ;
  - i. the rolling, 12-month summation of methanol emissions from P027, P055, and P073, in tons;
  - j. total phenol emissions from phenolic and non-phenolic binders employed in P027, P055, and P073, calculated as follows:  $b + g$ ;
  - k. the rolling, 12-month summation of phenol emissions from P027, P055, and P073, in tons;
  - l. total monthly VOC emissions from natural gas combustion from P027 (tons), when employing a phenolic binder, calculated as follows:  $[(175.2 \text{ MMCF/yr}) \times (5.5 \text{ lbs VOC/MMCF}) \times c / (8760 \times 2000)]$ ;
  - m. total VOC emissions from P027, P055, and P073 when employing a phenolic binder, calculated as follows:  $a + b + d + l + NG_{P055} + F_{P055} + F_{P073}$ , where NG equals natural gas and F equals formaldehyde;
  - n. total VOC emissions from P027, P055, and P073 when employing a non-phenolic binder, calculated as follows:  $e / 2000 \times 17.0 \text{ lb VOC/ton binder solids (maximum)}$  or emission factor determined from the most recent stack test performed while employing a non-phenolic binder;
  - o. total VOC emissions from P027, P055, and P073, calculated as follows:  $m + n$ , in tons; and
  - p. the rolling, 12-month summation of VOC emissions from P027, P055, and P073.
- (5) The permittee shall maintain monthly records of the following:
- a. tons binder solid usage rate for each type of product/product family produced using phenolic binder during each calendar month ( $P_{PFI}$ );



- b. rolling, 12-month summation of binder solids usage total for all products made using phenolic binder ( $P_{PF}$ );
  - c. documentation of the associated emission factor, in units of lb/tons binder solids, for each product/product family produced using phenolic binder during the calendar month ( $EF_{PFI}$ );
  - d. tons of binder solids employed in P027 for each product/product family produced using a non-phenolic binder;
  - e. the rolling, 12-month summation of the binder solid throughput rates employed as part of a non-phenolic binder;
  - f. total rolling 12-month summation of binders solids usage for both phenolic and non-phenolic binder ( $P_T$ ) calculated as follows:  $b + e$ .
- (6) The permittee shall properly install, operate, and maintain equipment to continuously monitor the water flow rate to the drop-out box (in gallons per minute) during operation of this emissions unit(s), including periods of startup and shutdown. The permittee shall record the water flow rate at least once every four hours. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. Each flow rate monitor is to be certified by its manufacturer to be accurate within  $\pm 5$  percent over its operating range in accordance with 40 CFR 60.683(a).
- (7) In accordance with 40 CFR 60.683(c), each flow rate monitor is to be recalibrated quarterly in accordance with procedures under 40 CFR 60.13(b).
- (8) See 40 CFR Part 60, Subpart PPP (40 CFR 60.680-685), except as specified in the U.S. EPA approved alternative monitoring request.
- (9) See 40 CFR Part 63, Subpart NNN (40 CFR 63.1380-63.1399), as applicable per b)(2)c.
- e) Reporting Requirements
- (1) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.
  - (2) The permittee shall submit semiannual written reports that identify:
    - a. all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and
    - b. any corrective actions taken to minimize or eliminate the visible particulate emissions.

These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.



- (3) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. all exceedances of the cumulative rolling, 12-month tons limitation of methanol and phenol in the resin delivered to P027 and P031 combined that is or will be employed in a phenolic binder [see term c)(4)];
  - b. all exceedances of the rolling, 12-month tons limitation of methanol and phenol in the resin delivered to P027 that is or will be employed in a phenolic binder [see term c)(5)]; and
  - c. all exceedances of the maximum allowable cumulative binder solids usage rate level as used in P027, P055, and P073 [see term c)(6)].

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (4) The permittee shall also submit annual reports that specify the total methanol, phenol and VOC emissions from P027, P055, and P073, combined. The reports shall be submitted by April 15th of each year. This reporting requirement may be satisfied by including and identifying the specific emission data for this emissions unit in the annual Fee Emission Report.
- (5) The permittee shall submit annual reports that specify the total formaldehyde emissions from P027. The reports shall be submitted by April 15th of each year. This reporting requirement may be satisfied by including and identifying the specific emission data for this emissions unit in the annual Fee Emission Report.
- (6) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
- (7) The permittee shall submit deviation (excursion) reports that identify all periods of time when the percent of free methanol in the phenol formaldehyde resin exceeds 1. Each report shall be submitted within 30 days after the occurrence.
- (8) In accordance with 40 CFR 60.684, the permittee shall submit written semiannual reports of exceedances of control device operating parameters required to be monitored and written documentation of, and a report of corrective maintenance required as a result of, quarterly calibrations of the monitoring devices required in §60.683(c). For the purpose of these reports, exceedances are defined as any monitoring data that are less than 70 percent of the lowest value or greater than 130 percent of the highest value of each operating parameter recorded during the most recent performance test, except as specified in the U.S. EPA approved alternative monitoring request.
- (9) See 40 CFR Part 60, Subpart PPP (40 CFR 60.680-685), except as specified in the U.S. EPA approved alternative monitoring request.



(10) See 40 CFR Part 63, Subpart NNN (40 CFR 63.1380-1399) as applicable per b)(2)c.

f) Testing Requirements

(1) Compliance with the emission limitation(s) in Section b)(1) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitations:

Filterable particulate emissions shall not exceed 21.7 pounds per hour, whereas filterable and condensable particulate emissions shall not exceed 28.00 pounds per hour.

Applicable Compliance Method

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for filterable and condensable particulate in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 5E. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

b. Emission Limitations:

Filterable and condensable particulate emissions shall not exceed 122.7 tons per year.

Applicable Compliance Method:

The annual emission limitation was established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

c. Emission Limitation:

NO<sub>x</sub> shall not exceed 4.37 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for nitrogen oxide with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 7E. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

NO<sub>x</sub> shall not exceed 19.2 tons per year.

Applicable Compliance Method:

Compliance may be established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s).



Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

- e. Emission Limitation: SO<sub>2</sub> emissions shall not exceed 5.63 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for filterable and sulfur dioxide in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6C. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- f. Emission Limitation:

SO<sub>2</sub> emissions shall not exceed 24.7 tons per year.

Applicable Compliance Method:

Compliance may be established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

- g. Emission Limitations:

CO emissions shall not exceed 15.29 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for carbon monoxide with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 10. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- h. Emission Limitations:

CO emissions shall not exceed 67.0 tons per year.

Applicable Compliance Method:

Compliance may be established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

- i. Emission Limitation:

When employing a phenolic binder, VOC emissions shall not exceed 30.11 pounds per hour.



Applicable Compliance Method:

The hourly VOC emission limit is a summation of maximum formaldehyde, methanol, phenol, and natural gas consumption emissions. Compliance with the hourly limitation will be demonstrated by summing the most recent hourly stack test results derived for formaldehyde, methanol, and phenol with the hourly VOC emissions from natural gas combustion for this emissions unit. Hourly VOC emissions from natural gas combustion are derived by multiplying the burner rating of 20 MMBTU per hour by the AP-42 emission factor for natural gas (5.5 lbs VOC/MMCF) from Table 1.4-1, 7/98, and divide by the conversion factor of 1020 MMBTU per MMCF.

j. Emission Limitation:

When employing a non-phenolic binder, VOC emissions shall not exceed 11.5 pounds per ton binder solids applied

Applicable Compliance Method:

The permittee shall conduct, or have conducted, emission testing for P027 in accordance with the following requirements:

- i. The emission testing shall be conducted within 6 months of commencement of operation of the modified source after permit issuance
- ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for VOC when employing a non-phenolic binder.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1 through 4, 5E, and 25A with the modifications proposed by the permittee in February 23, 2011, PTI Application A0040909, as approved by Ohio EPA. Alternative test methods may be used with prior approval from the Ohio EPA.
- iv. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, Central District Office.

k. Emission Limitation:

Formaldehyde emissions shall not exceed 4.0 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for formaldehyde in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 316 or 318. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.



I. Emission Limitation:

Formaldehyde emissions shall not exceed 17.6 tons per year.

Applicable Compliance Method:

Compliance may be determined by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

m. Emission Limitation:

Methanol emissions shall not exceed 13.0 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for methanol in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 308 or 318. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

n. Emission Limitation:

Phenol emissions shall not exceed 13.0 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for phenol in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 18 or 318. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

o. Emission Limitation:

Methanol emissions from P027, P055, and P073 shall not exceed 26.34 tons per rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be based upon the record keeping requirements in section d)(4)i of this permit.

p. Emission Limitation:

Phenol emissions from P027, P055, and P073 shall not exceed 26.46 tons per rolling, 12-month summation.



Applicable Compliance Method:

Compliance shall be based upon the record keeping requirements in section d)(4)k of this permit.

q. Emission Limitation:

VOC emissions from P027, P055, and P073 shall not exceed 74.67 tons per rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be based upon the record keeping requirements in section d)(4)p of this permit.

r. Emission Limitation:

1.2 pounds of formaldehyde per ton of glass pulled for the C-4 rotary spin manufacturing line

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for formaldehyde in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 40 CFR Part 63, Appendix A, Methods 316 or 318, as specified in 40 CFR 63, Subpart NNN. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

s. Emission Limitation:

Visible emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

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

t. Emission Limitation:

Ammonia emissions shall not exceed 33.0 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for ammonia in accordance with US EPA Method CTM-027 or alternative U.S. EPA approved test method may be used with prior approval from the Ohio EPA, Central District Office.



u. Emission Limitations:

Ammonia emissions shall not exceed 144.6 tons per year.

Applicable Compliance Method:

Compliance may be determined by multiplying the hourly emission rate established in an approved, compliance test (testing required above) by the actual hours of operation per year, and dividing by 2000 to convert to ton(s).

v. Emission Limitation:

Particulate matter emissions shall not exceed 11.0 lb/ton glass pulled (i.e., bare glass delivered to P027).

Applicable Compliance Method:

The permittee shall conduct, or have conducted, emission testing for P027 in accordance with the following requirements:

- i. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the affected facility will be operated, but no more than 180 days after initial startup of the modified source.
- ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for particulate.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rates: 40 CFR Part 60, Appendix A, Methods 1 through 4 and 5E. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.
- iv. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, Central District Office.
- v. In accordance with 40 CFR 60.685, testing shall be conducted as follows:
  - (a) In conducting the performance tests required in 60.8, the owner/operator shall use as reference methods and procedures the test methods in Appendix A of this part of other methods and procedures as specified in this section, except as provided in 60.8(b).
  - (b) The owner/operator shall conduct performance tests while the product with the highest loss on ignition (LOI) expected to be produced by the affected facility is being manufactured.



(c) The owner/operator shall determine compliance with the particulate matter standard in 60.682 as follows:

(i) The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = (C_t Q_{sd}) / (P_{avg} K)$$

Where:

E = emission rate of particulate matter, kg/Mg (lb/ton)

C<sub>t</sub> = concentration of particulate matter, g/dscm (gr/dscf)

Q<sub>sd</sub> = volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

P<sub>avg</sub> = average glass pull rate, Mg/hr (ton/hr)

K = 1,000 g/kg (7,000 gr/lb)

(ii) Method 5E shall be used to determine the particulate matter concentration (C<sub>t</sub>) and the volumetric flow rate (Q<sub>sd</sub>) of the effluent gas. The sampling time and sample volume shall be at least 120 minutes and 2.55 dscm (90.1 dscf).

(iii) The average glass pull rate (P<sub>avg</sub>) for the manufacturing line shall be the arithmetic average of three glass pull rate (P<sub>i</sub>) determinations taken at intervals of at least 30 minutes during each run.

The individual glass pull rates (P<sub>i</sub>) shall be computed using the following equation

$$P_i = K' L_s W_m M [1.0 - (LOI/100)]$$

Where:

P<sub>i</sub> = glass pull rate at interval "i", Mg/hr (ton/hr)

L<sub>s</sub> = line speed, m/min (ft/min)

W<sub>m</sub> = trimmed mat width, m (ft)

M = mat gram weight, g/m<sup>2</sup> (lb/ft<sup>2</sup>)

LOI = loss on ignition, weight percent



K' = conversion factor,  $6 \times 10^{-5}$  (min-Mg)/(hr-g)  
[ $3 \times 10^{-2}$  (min-ton)/(hr-lb)]

- 1) ASTM D2584-68 (Reapproved 1985) or 94 (incorporated by reference-see 40 CFR 60.17), shall be used to determine the LOI for each run.
- 2) Line speed ( $L_s$ ), trimmed mat width ( $W_m$ ), and mat gram weight (M) shall be determined for each run from the process information or from direct measurements.

(iv) To comply with 40 CFR 60.684(d), the permittee shall record measurements as required in Section d)(4) using the monitoring devices during the particulate matter runs.

- (2) Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Central District Office's refusal to accept the results of the emission test(s).

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

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Central District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Central District Office.

g) Miscellaneous Requirements

- (1) None.



**2. P055, C-4 Curing**

**Operations, Property and/or Equipment Description:**

9.18 tons per hour, natural gas-fired, C-4 curing oven, with incinerator. Terms in this permit supersede those identified in PTI P0107674 issued June 16, 2011.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective 11/30/01	<p>When employing phenolic binder, volatile organic compound (VOC) emissions shall not exceed 0.38 pound per hour.</p> <p>Sulfur dioxide emissions shall not exceed 0.71 pound per hour and 3.2 tons per year.</p> <p>See b)(2)b. below.</p> <p>The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-31-05(D) &amp; (F), 40 CFR 60, Subpart PPP, and 40 CFR 63, Subpart NNN.</p>
b.	ORC 3704.03(T)	<p>Filterable and condensable particulate emissions shall not exceed 3.0 pounds per hour and 13.2 tons per year.</p> <p>Nitrogen oxides emissions shall not exceed 15.27 pounds per hour and 67.0 tons per year.</p> <p>Carbon monoxide emissions shall not exceed 22.94 pounds per hour and 100.5 tons per year.</p> <p>See b)(2)a, and c)(1), (2), and (3) below.</p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-31-05(A), as effective 12/1/06	When employing non-phenolic binder, VOC emissions shall not exceed 1.0 pound per ton binder solids applied.  See b)(2)c.
d.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective 12/1/06	See b)(2)d.
e.	OAC rule 3745-31-05(F)	Ammonia emissions shall not exceed 2.18 pounds per hour and 9.6 tons per year.
f.	OAC rule 3745-31-05(D)	Methanol emissions from P027, P055, and P073 shall not exceed 26.34 tons per rolling 12-month summation.  Phenol emissions from P027, P055, and P073 shall not exceed 26.46 tons per rolling 12-month summation.  Volatile organic compound emissions from P027, P055, and P073 shall not exceed 74.67 tons per rolling 12 month summation.  See c)(4), (5), and (6) below.
g.	OAC rule 3745-17-07(A)	Visible particulate emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule.
h.	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).
i.	OAC rule 3745-18-06(E)(2)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).



k.	40 CFR Part 60, Subpart PPP (40 CFR 60.680-60.685)	11.0 lb particulate matter per ton of glass pulled (i.e., bare glass delivered to P027)  See b)(2)f.
l.	40 CFR Part 60, Subpart A	General Provisions in 40 CFR 60.1-60.19
m.	40 CFR Part 63 Subpart NNN (40 CFR 63.1380-63.1399) [In accordance with 40 CFR 63.1380(b)(2), this emissions unit serves a rotary spin wool fiberglass manufacturing line subject to the emissions limitations/control measures specified in this section when producing a bonded wool fiberglass building insulation product.]	0.6 kg of formaldehyde per megagram (1.2 lb of formaldehyde per ton) of glass pulled for P027, P055, and P073 combined.  See b)(2)f.
n.	40 CFR Part 63, Subpart A (40 CFR 63.1380(d))	Table 1 to Subpart NNN of 40 CFR Part 63 – Applicability of General Provisions to Subpart NNN shows which parts of the General Provisions in 40 CFR 63.1-63.15 apply.

(2) Additional Terms and Conditions

- a. Filterable particulate emissions shall not exceed 2.4 lbs/hr per the 1980 Consent Decree, State of Ohio versus the Owens-Corning Fiberglass Corporation.
- b. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (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 the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) 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 limitations/control measures no longer apply.
- c. 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.

Permit to Install P0107674 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment), as proposed by the permittee, for the purpose of avoiding Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3):



- i. VOC emissions shall not exceed 1.0 lb/ton binder solids applied.
- d. 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) do not apply to the sulfur dioxide emissions and VOC emissions, when employing phenolic binder, from this air contaminant source since the uncontrolled potential to emit for sulfur dioxide and VOC, when employing phenolic binder is less than 10 tons/year.

- e. In accordance with 40 CFR 60.682, on and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 5.5 kg/Mg (11.0 lb/ton) of glass pulled (i.e., bare glass delivered to P027).

In accordance with 40 CFR 60.681, "Manufacturing line" means the manufacturing equipment comprising the forming section, where molten glass is fiberized and a fiberglass mat is formed; the curing section, where the binder resin in the mat is thermally "set" and the cooling section where the mat is cooled.

- f. The emissions limit required pursuant to 40 CFR 63.1382(a)(2) for rotary spin manufacturing lines applies to P055 only when the following conditions are met:
  - i. Phenol-formaldehyde binder is employed in the C-4 line to produce a bonded wool fiberglass building insulation that:
    - (a) Has a loss on ignition (LOI) of less than 8 percent, and
    - (b) Has a density of less than 32 kilograms per cubic meter (kg/m<sup>3</sup>) (2 pounds per cubic foot) (lb/ft<sup>3</sup>)

When utilizing a non-phenolic binder, the C-4 line is not an affected source pursuant to 40 CFR 63.1380(b)(2) since it is not producing a "bonded" wool fiberglass insulation product as defined in 40 CFR 63.1381.

c) Operational Restrictions

- (1) The phenol formaldehyde resin delivered to this emissions unit shall not exceed a free methanol content of 1%, by weight.
- (2) The permittee shall burn only natural gas in this emissions unit.
- (3) The permittee shall vent all the emissions from this emissions unit through the incinerator.



- (4) The combined maximum amount of methanol and phenol in the resin delivered to P027 and P031 combined that is or will be employed in a phenolic binder shall not exceed 156 tons, based upon a rolling, 12-month summation of the resin delivered.
- (5) The maximum amount of methanol and phenol in the resin delivered to P027 that is or will be employed in a phenolic binder shall not exceed 60.7 tons, based upon a rolling, 12-month summation of the resin delivered.
- (6) In order to ensure that VOC emissions from P027, P055, and P073 do not exceed 74.67 tons per rolling 12-month summation, the total amount of binder solids employed in P027, P055, and P073 shall not exceed the amount determined based on the following equation, in tons, based upon a rolling, 12-month summation of the tons of binder solids that are employed in P027, P055, and P073:

$$P_T \leq \frac{149,340 - \sum_{i=1}^n [P_{PF_i} (EF_{PF_i} - EF_{NP})]}{EF_{NP}}$$

Where:

- n = number of products/product families capable of being produced when utilizing the phenolic binder (e.g., Product Family A, Product Family B, etc.)
- P<sub>T</sub> = total binder solids employed in P027, P055, and P073 (as part of either phenolic or non-phenolic binder), tons
- EF<sub>PF</sub> = VOC emission factor associated with the use of phenolic binder in P027, P055, and P073 for product/product family i, lb VOC/ton binder solids applied
- P<sub>PF</sub> = Phenolic binder solids usage in P027, P055, and P073 for product/product family i, tons
- EF<sub>NP</sub> = VOC emission factor for non-phenolic binder, lb VOC/ton binder solids. Use 17.0lb/ton or the value determined from the most recent stack test performed while employing the non-phenolic binder
- 149,340 = lbs VOC/yr limit equivalent to the 74.67 tons/yr VOC limit required in b)(1)e.

For the purposes of this PTI, “binder solids” are defined as any material in a phenolic or non-phenolic binder formulation that is not water.

- (7) For periods of time when the requirements of 40 CFR 63, Subpart NNN apply per b)(2)e, the permittee must operate each incinerator used to control formaldehyde emissions from P055 such that any 3-hour block average temperature in the firebox does not fall below the average established during the performance test as specified in Section 63.1384, in accordance with 40 CFR Part 63.1382(b)(6).



At all other times, the acceptable average combustion temperature within the incinerator, for any 3-hour block of time when the emissions unit(s) controlled by the incinerator is/are in operation, shall not be more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions unit(s) was/were in compliance.

- (8) See 40 CFR Part 60, Subpart PPP (40 CFR 60.680-685).
- (9) See 40 CFR Part 63, Subpart NNN (40 CFR 63.1380-1399), as applicable per b)(2)e.

d) Monitoring and/or Record keeping Requirements

- (1) The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
  - a. the color of the emissions;
  - b. whether the emissions are representative of normal operations;
  - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
  - d. the total duration of any visible emission incident; and
  - e. any corrective actions taken to eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (2) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- (3) The permittee shall maintain monthly records of the following information:
  - a. the tons of resin delivered to P027 that is or will be employed in a phenolic binder;



- b. the methanol concentration (%) in resin delivered to P027 that is or will be employed in a phenolic binder (as a weighted average of the methanol contents of all the resins employed, as taken from the resin delivery certificates received during the year);
  - c. the phenol concentration (%) in resin delivered to P027 that is or will be employed in a phenolic binder (as a weighted average of the phenol contents of all the resins employed, as taken from the resin delivery certificates received during the year);
  - d. total monthly methanol delivered to P027 that is or will be employed in a phenolic binder, in tons, calculated as  $a \times b$ ;
  - e. total monthly phenol delivered to P027 that is or will be employed in a phenolic binder, in tons, calculated as  $a \times c$ ;
  - f. total monthly tons of methanol and phenol in the resin delivered to P027, calculated as  $d + e$ ;
  - g. the rolling, 12-month summation of the tons of methanol and phenol in the resin delivered to P027;
  - h. total monthly methanol and phenol delivered to P027 and P031, combined, in tons that is or will be employed in a phenolic binder, calculated as follows:  $d + e + M_{P031} + P_{P031}$  where M equals methanol and P equals phenol; and
  - i. the rolling, 12-month summation of the tons of methanol and phenol in the resin delivered to P027 and P031, combined, that is or will be employed in a phenolic binder.
- (4) The permittee shall maintain monthly records of the following information:
- a. monthly methanol emitted from P027, P055, and P073 when employing a phenolic binder, calculated as follows:  $d(3)d \times [0.87 \text{ (fraction of delivered methanol estimated to be emitted over the entire C-4 manufacturing line)}]$ ;
  - b. monthly phenol emitted from P027, P055, and P073 when employing a phenolic binder, calculated as follows:  $d(3)(e) \times [0.87 \text{ (fraction of delivered phenol estimated to be emitted over the entire C-4 manufacturing line)}]$ ;
  - c. total monthly hours of operations for P027 when employing a phenolic binder;
  - d. monthly formaldehyde emissions from P055 ( $F_{P055}$ ) when employing a phenolic binder, calculated as follows:  $0.1 \text{ lbs/hr (hourly maximum)} \times c / 2000$ ;
  - e. total tons of non-phenolic binder solids employed in P027;
  - f. methanol emitted from P027, P055, and P073 when employing a non-phenolic binder, calculated as follows:  $e / 2000 \times 2.35 \text{ lb methanol/ton binder solids (maximum) or emission factor determined from the most recent stack test performed while employing the non-phenolic binder}$ ;



- g. phenol emitted from P027, P055, and P073 when employing a non-phenolic binder, calculated as follows:  $e / 2000 \times 0.402$  lb phenol/ton binder solids (maximum) or emission factor determined from the most recent stack test performed while employing the non-phenolic binder;
  - h. total methanol emissions from phenolic and non-phenolic binders employed in P027, P055, and P073, calculated as follows:  $a + f$ ;
  - i. the rolling, 12-month summation of methanol emissions from P027, P055, and P073, in tons;
  - j. total phenol emissions from phenolic and non-phenolic binders employed in P027, P055, and P073, calculated as follows:  $b + g$ ;
  - k. the rolling, 12-month summation of phenol emissions from P027, P055, and P073, in tons;
  - l. total monthly VOC emissions from natural gas combustion from P055 (tons), when employing a phenolic binder, calculated as follows:  $[(126.5 \text{ MMCF/yr}) \times (5.5 \text{ lbs VOC/MMCF}) \times c / (8760 \times 2000)]$ ;
  - m. total VOC emissions from P027, P055, and P073 when employing a phenolic binder, calculated as follows:  $a + b + d + l + NG_{P027} + F_{P027} + F_{P073}$ , where NG equals natural gas and F equals formaldehyde;
  - n. total VOC emissions from P027, P055, and P073 when employing a non-phenolic binder, calculated as follows:  $e / 2000 \times 17.0$  lb VOC/ton binder solids (maximum) or emission factor determined from the most recent stack test performed while employing a non-phenolic binder;
  - o. total VOC emissions from P027, P055, and P073, calculated as follows:  $m + n$ , in tons; and
  - p. the rolling, 12-month summation of VOC emissions from P027, P055, and P073.
- (5) The permittee shall maintain monthly records of the following:
- a. tons binder solid usage rate for each type of product/product family produced using phenolic binder during each calendar month ( $P_{PFI}$ );
  - b. rolling, 12-month summation of binder solids usage total for all products made using phenolic binder ( $P_{PF}$ );
  - c. documentation of the associated emission factor, in units of lb/tons binder solids, for each product/product family produced using phenolic binder during the calendar month ( $EF_{PFI}$ );
  - d. tons of binder solids employed in P027 for each product/product family produced using a non-phenolic binder;



- e. the rolling, 12-month summation of the binder solid throughput rates employed as part of a non-phenolic binder;
  - f. total rolling 12-month summation of binders solids usage for both phenolic and non-phenolic binder ( $P_T$ ) calculated as follows:  $b + e$ .
- (6) The permittee shall install, calibrate, maintain and operate a monitoring device that continuously measures and records the operating temperature in the firebox of the incinerator.
- (7) For periods of time when the requirements of 40 CFR 63, Subpart NNN apply per b)(2)e, the permittee shall maintain records of the incinerator operating temperature, including any period when the temperature fell below the established average, the date and time of the problem, when corrective actions were initiated, the cause of the problem, an explanation of the corrective actions taken, and when the cause of the problem was corrected in accordance with 40 CFR Part 63.1386(d)(2)(viii).
- (8) For periods of time when the requirements of 40 CFR 63, Subpart NNN do not apply per b)(2)e, the permittee shall collect and record the following information each day the emissions unit(s) is/are in operation:
- a. all 3-hour blocks of time, when the emissions unit(s) controlled by the incinerator was/were in operation, during which the average combustion temperature within the incinerator was more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions unit(s) was/were in compliance; and
  - b. a log or record of the operating time for the capture (collection) system, incinerator, monitoring equipment, and the associated emissions unit(s).

These records shall be maintained at the facility for a period of three years.

- (9) For periods of time when the requirements of 40 CFR 63, Subpart NNN do not apply per b)(2)e and whenever the monitored average combustion temperature within the incinerator deviates from the range or limit established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:
- a. the date and time the deviation began;
  - b. the magnitude of the deviation at that time;
  - c. the date the investigation was conducted;
  - d. the name(s) of the personnel who conducted the investigation; and
  - e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range/limit specified in this permit, unless the



permittedetermines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the temperature readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

- (10) The permittee must inspect each incinerator at least once per year according to the procedures in the operations, maintenance and monitoring plan in accordance with 40 CFR Part 63.1383(g)(2). At a minimum, an inspection must include the following:
- a. inspect all burners, pilot assemblies, and pilot sensing devices for proper operation and clean pilot sensor, as necessary;
  - b. ensure proper adjustment of combustion air and adjust, as necessary;
  - c. inspect, when possible, internal structures, for example, baffles, to ensure structural integrity per the design specifications;
  - d. inspect dampers, fans, and blowers for proper operating;
  - e. inspect for proper sealing;
  - f. inspect motors for proper operation;
  - g. inspect combustion chamber refractory lining and clean and repair/replace lining, as necessary;
  - h. inspect incinerator shell for corrosion and/or hot spots;
  - i. for the burn cycle that follows the inspection, document that the incinerator is operating properly and make any necessary adjustments; and
  - j. generally observe that the equipment is maintained in good operating condition.
  - k. the permittee shall complete all necessary repairs as soon as practicable.



The permittee shall maintain records of the results of periodic inspection of incinerator components, including any period when the inspection identified problems with the incinerator, the date and time of the problem, when corrective actions were initiated, the cause of the problem, an explanation of the corrective actions taken, and when the cause of the problem was corrected in accordance with 40 CFR Part 63.1386(d)(2)(viii).

(11) See 40 CFR Part 63, Subpart NNN (40 CFR 63.1380-63.1399), as applicable per b)(2)f.

e) Reporting Requirements

(1) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

(2) The permittee shall submit semiannual written reports that identify:

- a. all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and
- b. any corrective actions taken to minimize or eliminate the visible particulate emissions.

These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

(3) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

- a. all exceedances of the cumulative rolling, 12-month tons limitation of methanol and phenol in the resin delivered to P027 and P031 combined that is or will be employed in a phenolic binder [see term c)(4)];
- b. all exceedances of the rolling, 12-month tons of methanol and phenol in the resin delivered to P027 limitation [see term c)(5)]; and
- c. all exceedances of the maximum allowable cumulative binder solids usage rate level as used in P027, P055, and P073 [see term c)(6)].

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(4) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

(5) The permittee shall also submit annual reports that specify the total methanol, phenol and VOC emissions from P027, P055, and P073, combined. The reports shall be submitted by April 15th of each year. This reporting requirement may be satisfied by including and identifying the specific emission data for this emissions unit in the annual Fee Emission Report.



- (6) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
- (7) The permittee shall submit deviation (excursion) reports that identify all periods of time when the percent of free methanol in the phenol formaldehyde resin exceeds 1%. Each report shall be submitted within 30 days after the deviation occurs.
- (8) For periods of time when the requirements of 40 CFR 63, Subpart NNN apply per b)(2)f, the permittee shall report semiannually if measured emissions are in excess of the applicable standard or a monitored parameter deviates from the levels established during the performance test. The report shall contain the information specified in section 63.10(c) of this part as well as the additional records required by the record keeping requirements of paragraph (d) of 63.1386. When no deviations have occurred, the permittee shall submit a report stating that no excess emissions occurred during the reporting period.
- (9) The permittee shall submit quarterly summaries of the following records for periods of time when the requirements of 40 CFR 63, Subpart NNN do not apply per b)(2)f:
  - a. all 3-hour blocks of time (when the emissions unit(s) was/were in operation) during which the average combustion temperature within the incinerator was more than 50 degrees Fahrenheit below the average temperature maintained during the most recent performance test that demonstrated the emissions unit(s) was/were in compliance;
  - b. any records of downtime (date and length of time) for the capture (collection) system, the incinerator, and/or the monitoring equipment when the emissions unit(s) was/were in operation; and
  - c. a log of the operating time for the capture system, incinerator, monitoring equipment, and the emissions unit(s).

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (10) See 40 CFR Part 60, Subpart PPP (40 CFR 60.680-685).
- (11) See 40 CFR Part 63, Subpart NNN (40 CFR 63.1380-1399) as applicable per b)(2)f.

f) **Testing Requirements**

- (1) Compliance with the emission limitations in Section b)(1) of these terms and conditions shall be determined in accordance with the following methods:
  - a. **Emission Limitations:**

Filterable particulate emissions shall not exceed 2.4 pounds per hour, whereas filterable and condensable particulate emissions shall not exceed 3.0 pounds per hour.



Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for filterable and condensable particulate in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 5E. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

b. Emission Limitations:

Filterable and condensable particulate emissions shall not exceed 13.2 tons per year.

Applicable Compliance Method:

The annual emission limitation was established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

c. Emission Limitations:

Carbon monoxide emissions shall not exceed 22.94 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for carbon monoxide with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 10. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitations:

Carbon monoxide emissions shall not exceed 100.5 tons per year.

Applicable Compliance Method:

The annual emission limitation was established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

e. Emission Limitations:

Sulfur dioxide emissions shall not exceed 0.71 pound per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for filterable and sulfur dioxide in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6C. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.



f. Emission Limitations:

Sulfur dioxide emissions shall not exceed 3.2 tons per year.

Applicable Compliance Method:

The annual emission limitation was established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

g. Emission Limitation:

Nitrogen oxides shall not exceed 15.27 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for nitrogen oxide with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 7E. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

h. Emission Limitation:

Nitrogen oxides shall not exceed 67.0 tons per year.

Applicable Compliance Method:

The annual emission limitation was established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

i. Emission Limitation:

When employing a phenolic binder, VOC emissions shall not exceed 0.38 pound per hour.

Applicable Compliance Method:

The hourly VOC emission limitation was established as the summation of maximum formaldehyde, methanol, phenol, and VOC emissions from natural gas combustion. Compliance with the hourly limitation may be demonstrated by summing the hourly stack test results for formaldehyde, methanol, and phenol with the hourly VOC emissions from natural gas combustion for this emissions unit. Hourly VOC emissions from natural gas combustion are derived by multiplying the maximum MMCF usage of the natural gas burners (126.5) by the AP-42 emission factor for natural gas (5.5 lbs VOC/MMCF) from Table 1.4-1, 7/98, and then dividing by 8760 to convert from an annual to an hourly emission rate.



j. Emission Limitation:

When employing a non-phenolic binder, VOC emissions shall not exceed 1.0 lb/ton binder solids applied.

Applicable Compliance Method:

The permittee shall conduct, or have conducted, emission testing for P055 in accordance with the following requirements:

- i. The emission testing shall be conducted within 6 months of commencement of operation of the modified source after permit issuance
- ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for VOC when employing a non-phenolic binder.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1 through 4, 5E, and 25A with the modifications proposed by the permittee in February 23, 2011, PTI Application A0040909, as approved by Ohio EPA. Alternative test methods may be used with prior approval from the Ohio EPA.
- iv. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, Central District Office.

k. Emission Limitation:

Methanol emissions from P027, P055, and P073 shall not exceed 26.34 tons per rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be based upon the record keeping requirements in section d)(4)i of this permit.

l. Emission Limitation:

Phenol emissions from P027, P055, and P073 shall not exceed 26.46 tons per rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be based upon the record keeping requirements in section d)(4)k of this permit.



m. Emission Limitation:

Volatile organic compound emissions from P027, P055, and P073 shall not exceed 74.67 tons per rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be based upon the record keeping requirements in section d)(4)p of this permit.

n. Emission Limitation:

1.2 pounds of formaldehyde per ton of glass pulled for the C-4 rotary spin manufacturing line

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for formaldehyde in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 40 CFR Part 63, Appendix A, Methods 316 or 318, as specified in 40 CFR 63, Subpart NNN. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

o. Emission Limitation:

Visible emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

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

p. Emission Limitations:

Ammonia emissions shall not exceed 2.18 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for ammonia in accordance with US EPA Method CTM-027 or alternative U.S. EPA approved test method may be used with prior approval from the Ohio EPA, Central District Office.

q. Emission Limitations:

Ammonia emissions shall not exceed 9.6 tons per year.



Applicable Compliance Method:

The annual emission limitation was established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

r. Emission Limitation:

Particulate matter emissions shall not exceed 11.0 lb/ton glass pulled (i.e., bare glass delivered to P027).

Applicable Compliance Method:

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

- i. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the affected facility will be operated, but no more than 180 days after initial startup of the modified source.
- ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for particulate.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rates: 40 CFR Part 60, Appendix A, Methods 1 through 4 and 5E. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.
- iv. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, Central District Office.
- v. In accordance with 40 CFR 60.685, testing shall be conducted as follows:
  - (a) In conducting the performance tests required in 60.8, the owner/operator shall use as reference methods and procedures the test methods in Appendix A of this part of other methods and procedures as specified in this section, except as provided in 60.8(b).
  - (b) The owner/operator shall conduct performance tests while the product with the highest loss on ignition (LOI) expected to be produced by the affected facility is being manufactured.
  - (c) The owner/operator shall determine compliance with the particulate matter standard in 60.682 as follows:



- (i) The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = (C_t Q_{sd}) / (P_{avg} K)$$

Where:

E = emission rate of particulate matter, kg/Mg (lb/ton)

C<sub>t</sub> = concentration of particulate matter, g/dscm (gr/dscf)

Q<sub>sd</sub> = volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

P<sub>avg</sub> = average glass pull rate, Mg/hr (ton/hr)

K = 1,000 g/kg (7,000 gr/lb)

- (ii) Method 5E shall be used to determine the particulate matter concentration (C<sub>t</sub>) and the volumetric flow rate (Q<sub>sd</sub>) of the effluent gas. The sampling time and sample volume shall be at least 120 minutes and 2.55 dscm (90.1 dscf).

- (iii) The average glass pull rate (P<sub>avg</sub>) for the manufacturing line shall be the arithmetic average of three glass pull rate (P<sub>i</sub>) determinations taken at intervals of at least 30 minutes during each run.

The individual glass pull rates (P<sub>i</sub>) shall be computed using the following equation

$$P_i = K' L_s W_m M [1.0 - (LOI/100)]$$

Where:

P<sub>i</sub> = glass pull rate at interval "i", Mg/hr (ton/hr)

L<sub>s</sub> = line speed, m/min (ft/min)

W<sub>m</sub> = trimmed mat width, m (ft)

M = mat gram weight, g/m<sup>2</sup> (lb/ft<sup>2</sup>)

LOI = loss on ignition, weight percent

K' = conversion factor, 6x10<sup>-5</sup> (min-Mg)/(hr-g) [3x10<sup>-2</sup> (min-ton)/(hr-lb)]



- 1) ASTM D2584-68 (Reapproved 1985) or 94 (incorporated by reference-see 40 CFR 60.17), shall be used to determine the LOI for each run.
  - 2) Line speed ( $L_s$ ), trimmed mat width ( $W_m$ ), and mat gram weight ( $M$ ) shall be determined for each run from the process information or from direct measurements.
- (2) Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Central District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Central District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Central District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Central District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Central District Office.

- g) Miscellaneous Requirements
- (1) None.



**3. P073, C-4 Cooling**

**Operations, Property and/or Equipment Description:**

8.53 tons per hour, C-4 cooling section, w/ wet scrubber & smoke stripper. Terms in this permit supersede those identified in PTI P0107674 issued June 16, 2011.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective 11/30/01	<p>When employing phenolic binder, volatile organic compound (VOC) emissions shall not exceed 1.22 pound per hour.</p> <p>Formaldehyde emissions shall not exceed 0.7 pound per hour and 3.1 tons per year.</p> <p>See b)(2)b</p> <p>The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-31-05(D) &amp; (F), 40 CFR 60, SubpartPPP, and 40 CFR 63,Subpart NNN.</p>
b.	ORC 3704.03(T)	<p>Filterable and condensable particulate emissions shall not exceed 3.85 pounds per hour and 16.9 tons per year.</p> <p>When employing non-phenolic binder, VOC emissions shall not exceed 4.5 pounds per ton binder solids applied.</p> <p>See b)(2)a, c)(1), and c)(2) below.</p>
c.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective 12/1/06	See b)(2)c
d.	OAC rule 3745-31-05(F)	Ammonia emissions shall not exceed 3.5 pounds per hour and 15.3 tons per year.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
e.	OAC rule 3745-31-05(D)	<p>Methanol emissions from P027, P055, and P073 shall not exceed 26.34 tons per rolling 12-month summation.</p> <p>Phenol emissions from P027, P055, and P073 shall not exceed 26.46 tons per rolling 12-month summation.</p> <p>Volatile organic compound emissions from P027, P055, and P073 shall not exceed 74.67 tons per rolling 12-month summation.</p> <p>See c)(3), (4), and (5) below.</p>
f.	OAC rule 3745-17-07(A)	Visible particulate emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule, or as specified in an EVEL as approved by Ohio EPA.
g.	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).
h.	40 CFR 60, Subpart PPP	<p>11.0 lb particulate matter per ton of glass pulled (i.e., bare glass delivered to P027)</p> <p>See b)(2)d.</p>
i.	40 CFR Part 60, Subpart A	General Provisions in 40 CFR 60.1-60.19
j.	<p>40 CFR Part 63 Subpart NNN (40 CFR 63.1380-63.1399)</p> <p>[In accordance with 40 CFR 63.1380(b)(2), this emissions unit serves a rotary spin wool fiberglass manufacturing line subject to the emissions limitations/control measures specified in this section when producing a bonded wool fiberglass building insulation product.]</p>	<p>0.6 kg of formaldehyde per megagram (1.2 lb of formaldehyde per ton) of glass pulled for P027, P055, and P073 combined.</p> <p>See b)(2)e.</p>
k.	40 CFR Part 63, Subpart A (40 CFR 63.1380(d))	Table 1 to Subpart NNN of 40 CFR Part 63 – Applicability of General Provisions to Subpart NNN shows which parts of the General Provisions in 40 CFR 63.1-63.15 apply.



(2) Additional Terms and Conditions

- a. Filterable particulate emissions shall not exceed 14.5 lbs/hr per the 1980 Consent Decree, State of Ohio versus the Owens-Corning Fiberglass Corporation.
- b. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (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 the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) 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 limitations/control measures no longer apply.
- c. 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.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the VOC and Formaldehyde emissions from this air contaminant source since the uncontrolled potential to emit is less than 10 tons/yr.

- d. In accordance with 40 CFR 60.682, on and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 5.5 kg/Mg (11.0 lb/ton) of glass pulled (i.e., bare glass delivered to P027).

In accordance with 40 CFR 60.681, "Manufacturing line" means the manufacturing equipment comprising the forming section, where molten glass is fiberized and a fiberglass mat is formed; the curing section, where the binder resin in the mat is thermally "set" and the cooling section where the mat is cooled.

- e. The emissions limit required pursuant to 40 CFR 63.1382(a)(2) for rotary spin manufacturing lines applies to P073 only when the following conditions are met:
  - i. Phenol-formaldehyde binder is employed in the C-4 line to produce a bonded wool fiberglass building insulation that:
    - (a) Has a loss on ignition (LOI) of less than 8 percent, and



- (b) Has a density of less than 32 kilograms per cubic meter (kg/m<sup>3</sup>) (2 pounds per cubic foot) (lb/ft<sup>3</sup>)

When utilizing a non-phenolic binder, the C-4 line is not an affected source pursuant to 40 CFR 63.1380(b)(2) since it is not producing a “bonded” wool fiberglass insulation product as defined in 40 CFR 63.1381.

c) Operational Restrictions

- (1) The phenol formaldehyde resin delivered to this emissions unit shall not exceed a free methanol content of 1%, by weight.
- (2) The permittee shall vent all the emissions from this emissions unit to one of two existing control systems: either a smoke stripper [scrubber followed by a high performance air filter (HPAF)] or a wet scrubber.
- (3) The combined maximum amount of methanol and phenol in the resin delivered to P027 and P031 combined that is or will be employed in a phenolic binder shall not exceed 156 tons, based upon a rolling, 12-month summation of the resin delivered.
- (4) The maximum amount of methanol and phenol in the resin delivered to P027 that is or will be employed in a phenolic binder shall not exceed 60.7 tons, based upon a rolling, 12-month summation of the resin delivered.
- (5) In order to ensure that VOC emissions from P027, P055, and P073 do not exceed 74.67 tons per rolling 12-month summation, the total amount of binder solids employed in P027, P055, and P073 shall not exceed the amount determined based on the following equation, in tons, based upon a rolling, 12-month summation of the tons of binder solids that are employed in P027, P055, and P073:

$$P_T \leq \frac{149,340 - \sum_{i=1}^n [P_{PF_i} (EF_{PF_i} - EF_{NP})]}{EF_{NP}}$$

Where:

- n = number of products/product families capable of being produced when utilizing the phenolic binder (e.g., Product Family A, Product Family B, etc.)
- P<sub>T</sub> = total binder solids employed in P027, P055, and P073 (as part of either phenolic or non-phenolic binder), tons
- EF<sub>PF</sub> = VOC emission factor associated with the use of phenolic binder in P027, P055, and P073 for product/product family i, lb VOC/ton binder solids applied
- P<sub>PF</sub> = Phenolic binder solids usage in P027, P055, and P073 for product/product family i, tons



- $EF_{NP}$  = VOC emission factor for non-phenolic binder, lb VOC/ton binder solids. Use 17.0lb/ton or the value determined from the most recent stack test performed while employing the non-phenolic binder
- 149,340 = lbs VOC/yr limit equivalent to the 74.67 tons/yr VOC limit required in b)(1)e.

For the purposes of this PTI, "binder solids" are defined as any material in a phenolic or non-phenolic binder formulation that is not water.

- (6) In accordance with 40 CFR 60.684, after completion of the performance test, the permittee shall maintain the scrubber liquid flow rate (gpm) and the gas pressure drop across the scrubber (pascals) to no less than 70 percent of the lowest value and no more than 130 percent of the highest value recorded during the most recent performance test when the emissions unit is in operation, except as specified in the U.S. EPA approved alternative monitoring request.
- (7) See 40 CFR Part 60, Subpart PPP (40 CFR 60.680-685), except as specified in the U.S. EPA approved alternative monitoring request.
- (8) See 40 CFR Part 63, Subpart NNN (40 CFR 63.1380-1399), as applicable per b)(2)e.
- d) Monitoring and/or Record keeping Requirements
- (1) The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
- a. the color of the emissions;
  - b. whether the emissions are representative of normal operations;
  - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
  - d. the total duration of any visible emission incident; and
  - e. any corrective actions taken to eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.



- (2) The permittee shall maintain monthly records of the following information:
- a. the tons of resin delivered to P027 that is or will be employed in a phenolic binder;
  - b. the methanol concentration (%) in resin delivered to P027 that is or will be employed in a phenolic binder (as a weighted average of the methanol contents of all the resins employed, as taken from the resin delivery certificates received during the year);
  - c. the phenol concentration (%) in resin delivered to P027 that is or will be employed in a phenolic binder (as a weighted average of the phenol contents of all the resins employed, as taken from the resin delivery certificates received during the year);
  - d. total monthly methanol delivered to P027 that is or will be employed in a phenolic binder, in tons, calculated as  $a \times b$ ;
  - e. total monthly phenol delivered to P027 that is or will be employed in a phenolic binder, in tons, calculated as  $a \times c$ ;
  - f. total monthly tons of methanol and phenol in the resin delivered to P027, calculated as  $d + e$ ;
  - g. the rolling, 12-month summation of the tons of methanol and phenol in the resin delivered to P027;
  - h. total monthly methanol and phenol delivered to P027 and P031, combined, in tons that is or will be employed in a phenolic binder, calculated as follows:  $d + e + M_{P031} + P_{P031}$  where M equals methanol and P equals phenol; and
  - i. the rolling, 12-month summation of the tons of methanol and phenol in the resin delivered to P027 and P031, combined, that is or will be employed in a phenolic binder.
- (3) The permittee shall maintain monthly records of the following information:
- a. monthly methanol emitted from P027, P055, and P073 when employing a phenolic binder, calculated as follows:  $d(2)d \times [0.87 \text{ (fraction of delivered methanol estimated to be emitted over the entire C-4 manufacturing line)}]$ ;
  - b. monthly phenol emitted from P027, P055, and P073 when employing a phenolic binder, calculated as follows:  $d(2)(e) \times [0.87 \text{ (fraction of delivered phenol estimated to be emitted over the entire C-4 manufacturing line)}]$ ;
  - c. total monthly hours of operations for P027 when employing a phenolic binder;
  - d. monthly formaldehyde emissions from P073 ( $F_{P073}$ ) when employing a phenolic binder, calculated as follows:  $0.7 \text{ lbs/hr (hourly maximum)} \times c / 2000$ ;
  - e. total tons of non-phenolic binder solids employed in P027;



- f. methanol emitted from P027, P055, and P073 when employing a non-phenolic binder, calculated as follows:  $e / 2000 \times 2.35$  lb methanol/ton binder solids (maximum) or emission factor determined from the most recent stack test performed while employing the non-phenolic binder;
  - g. phenol emitted from P027, P055, and P073 when employing a non-phenolic binder, calculated as follows:  $e / 2000 \times 0.402$  lb phenol/ton binder solids (maximum) or emission factor determined from the most recent stack test performed while employing the non-phenolic binder;
  - h. total methanol emissions from phenolic and non-phenolic binders employed in P027, P055, and P073, calculated as follows:  $a + f$ ;
  - i. the rolling, 12-month summation of methanol emissions from P027, P055, and P073, in tons;
  - j. total phenol emissions from phenolic and non-phenolic binders employed in P027, P055, and P073, calculated as follows:  $b + g$ ;
  - k. the rolling, 12-month summation of phenol emissions from P027, P055, and P073, in tons;
  - l. total VOC emissions from P027, P055, and P073 when employing a phenolic binder, calculated as follows:  $a + b + d + NG_{P027} + F_{P027} + NG_{P055} + F_{P055}$ , where NG equals natural gas and F equals formaldehyde;
  - m. total VOC emissions from P027, P055, and P073 when employing a non-phenolic binder, calculated as follows:  $e / 2000 \times 14.2$  lb VOC/ton binder solids (maximum) or emission factor determined from the most recent stack test performed while employing a non-phenolic binder;
  - n. total VOC emissions from P027, P055, and P073, calculated as follows:  $l + m$ , in tons; and
  - o. the rolling, 12-month summation of VOC emissions from P027, P055, and P073.
- (4) The permittee shall maintain monthly records of the following:
- a. tons binder solid usage rate for each type of product/product family produced using phenolic binder during each calendar month ( $P_{PFI}$ );
  - b. rolling, 12-month summation of binder solids usage total for all products made using phenolic binder ( $P_{PF}$ );
  - c. documentation of the associated emission factor, in units of lb/tons binder solids, for each product/product family produced using phenolic binder during the calendar month ( $EF_{PFI}$ );
  - d. tons of binder solids employed in P027 for each product/product family produced using a non-phenolic binder;



- e. the rolling, 12-month summation of the binder solid throughput rates employed as part of a non-phenolic binder;
  - f. total rolling 12-month summation of binders solids usage for both phenolic and non-phenolic binder ( $P_T$ ) calculated as follows: b + e.
- (5) The permittee shall properly operate and maintain equipment to continuously monitor the gas pressure drop across the scrubber and the scrubber liquid flow rate while the emissions unit is in operation. The permittee shall record the pressure drop and flow rate at least once every four hours. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals, with any modifications deemed necessary by the permittee. The pressure drop monitor is to be certified by its manufacturer to be accurate within  $\pm 250$  pascals ( $\pm 1$  inch water gauge) over its operating range, and the flow rate monitor is to be certified by its manufacturer to be accurate within  $\pm 5$  percent over its operating range, in accordance with 40 CFR 60.683(a).

Whenever the monitored value for any parameter deviates from the range(s) or minimum limit(s) established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the control equipment parameters within the acceptable range(s), or at or above the minimum limit(s) specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date the corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the flow rate readings immediately after the corrective action was implemented; and



- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

- (6) In accordance with 40 CFR 60.683(c), all monitoring devices required under this section are to be recalibrated quarterly in accordance with procedures under §60.13(b).
- (7) See 40 CFR Part 60, Subpart PPP (40 CFR 60.680-685), except as specified in the U.S. EPA approved alternative monitoring request.
- (8) See 40 CFR Part 63, Subpart NNN (40 CFR 63.1380-63.1399), as applicable per b(2)e.

e) Reporting Requirements

- (1) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.
- (2) The permittee shall submit semiannual written reports that identify:
  - a. all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and
  - b. any corrective actions taken to minimize or eliminate the visible particulate emissions.

These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

- (3) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. all exceedances of the cumulative rolling, 12-month tons limitation of methanol and phenol in the resin delivered to P027 and P031 combined that is or will be employed in a phenolic binder [see term c)(3)];
  - b. all exceedances of the rolling, 12-month tons of methanol and phenol in the resin delivered to P027 limitation [see term c)(4)]; and
  - c. all exceedances of the maximum allowable cumulative binder solids usage rate level as used in P027, P055, and P073 [see term c)(5)].

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (4) The permittee shall also submit annual reports that specify the total methanol, phenol and VOC emissions from P027, P055, and P073, combined. The reports shall be submitted by April 15th of each year. This reporting requirement may be satisfied by



including and identifying the specific emission data for this emissions unit in the annual Fee Emission Report.

- (5) The permittee shall submit deviation (excursion) reports that identify all periods of time when the percent of free methanol in the phenol formaldehyde resin exceeds 1%. Each report shall be submitted within 30 days after the deviation occurs.
  - (6) In accordance with 40 CFR 60.684, the permittee shall submit written semiannual reports of exceedances of control device operating parameters required to be monitored and written documentation of, and a report of corrective maintenance required as a result of, quarterly calibrations of the monitoring devices required in §60.683(c). For the purpose of these reports, exceedances are defined as any monitoring data that are less than 70 percent of the lowest value or greater than 130 percent of the highest value of each operating parameter recorded during the most recent performance test, except as specified in the U.S. EPA approved alternative monitoring request.
  - (7) See 40 CFR Part 60, Subpart PPP (40 CFR 60.680-685), except as specified in the U.S. EPA approved alternative monitoring request.
  - (8) See 40 CFR Part 63, Subpart NNN (40 CFR 63.1380-1399), as applicable per b)(2)e.
- f) Testing Requirements
- (1) Compliance with the emission limitations in Section b)(1) of these terms and conditions shall be determined in accordance with the following methods:
    - a. Emission Limitations:

Filterable particulate emissions shall not exceed 14.5 pounds per hour, whereas filterable and condensable particulate emissions shall not exceed 3.85 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for filterable and condensable particulate in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 5E. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
    - b. Emission Limitations:

Filterable and condensable particulate emissions shall not exceed 16.9 tons per year.

Applicable Compliance Method:

The annual emission limitation was established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.



c. Emission Limitation:

When employing phenolic binder, VOC emissions shall not exceed 1.22 pounds per hour.

Applicable Compliance Method:

The hourly VOC emission limitation was established as the summation of maximum formaldehyde, methanol, and phenol emissions. Compliance with the hourly limitation may be demonstrated by summing the hourly stack test results for formaldehyde, methanol, and phenol.

d. Emission Limitation:

When employing a non-phenolic binder, VOC emissions shall not exceed 4.5 pound per ton binder solids applied.

Applicable Compliance Method:

The permittee shall conduct, or have conducted, emission testing for P073 in accordance with the following requirements:

- i. The emission testing shall be conducted within 6 months of commencement of operation of the modified source after permit issuance
- ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for VOC when employing a non-phenolic binder.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1 through 4, 5E, and 25A with the modifications proposed by the permittee in February 23, 2011, PTI Application A0040909, as approved by Ohio EPA. Alternative test methods may be used with prior approval from the Ohio EPA.
- iv. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, Central District Office.

e. Emission Limitation:

Formaldehyde emissions shall not exceed 0.7 pound per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for formaldehyde in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 316 or 318. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.



f. Emission Limitation:

Formaldehyde emissions shall not exceed 3.1 tons per year.

Applicable Compliance Method:

The annual emission limitation was established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

g. Emission Limitation:

Methanol emissions from P027, P055, and P073 shall not exceed 26.34 tons per rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be based upon the record keeping requirements in section d)(3)i of this permit.

h. Emission Limitation:

Phenol emissions from P027, P055, and P073 shall not exceed 26.46 tons per rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be based upon the record keeping requirements in section d)(3)k of this permit.

i. Emission Limitation:

Volatile organic compound emissions from P027, P055, and P073 shall not exceed 74.67 tons per rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be based upon the record keeping requirements in section d)(3)o of this permit.

j. Emission Limitation:

1.2 pounds of formaldehyde per ton of glass pulled for the C-4 rotary spin manufacturing line

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for formaldehyde in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 40 CFR Part 63, Appendix A, Methods 316 or 318, as



specified in 40 CFR 63, Subpart NNN. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

k. Emission Limitation:

Visible emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule or as specified in an EVEL as approved by Ohio EPA.

Applicable Compliance Method:

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

l. Emission Limitations:

Ammonia emissions shall not exceed 3.5 pounds per hour.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the allowable mass emission rate for ammonia in accordance with US EPA Method CTM-027 or alternative U.S. EPA approved test method may be used with prior approval from the Ohio EPA, Central District Office.

m. Emission Limitations:

Ammonia emissions shall not exceed 15.3 tons per year.

Applicable Compliance Method:

The annual emission limitation was established by multiplying the hourly emission limitation by 8760 hours of operation per year and dividing by 2000 to convert to ton(s). Therefore, compliance with the annual emission limitation shall be assumed if compliance with the hourly emission limitation is maintained.

n. Emission Limitation:

Particulate matter emissions shall not exceed 11.0 lb/ton glass pulled (i.e., bare glass delivered to P027).

Applicable Compliance Method:

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

- i. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the affected facility will be operated, but no more than 180 days after initial startup of the modified source.



- ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for particulate.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rates: 40 CFR Part 60, Appendix A, Methods 1 through 4 and 5E. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.
- iv. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, Central District Office.
- v. In accordance with 40 CFR 60.685, testing shall be conducted as follows:

- (a) In conducting the performance tests required in 60.8, the owner/operator shall use as reference methods and procedures the test methods in Appendix A of this part of other methods and procedures as specified in this section, except as provided in 60.8(b).
- (b) The owner/operator shall conduct performance tests while the product with the highest loss on ignition (LOI) expected to be produced by the affected facility is being manufactured.
- (c) The owner/operator shall determine compliance with the particulate matter standard in 60.682 as follows:

- (i) The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = (C_t Q_{sd}) / (P_{avg} K)$$

Where:

E = emission rate of particulate matter, kg/Mg (lb/ton)

C<sub>t</sub> = concentration of particulate matter, g/dscm (gr/dscf)

Q<sub>sd</sub> = volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

P<sub>avg</sub> = average glass pull rate, Mg/hr (ton/hr)

K = 1,000 g/kg (7,000 gr/lb)

- (ii) Method 5E shall be used to determine the particulate matter concentration (C<sub>t</sub>) and the volumetric flow rate (Q<sub>sd</sub>)



of the effluent gas. The sampling time and sample volume shall be at least 120 minutes and 2.55 dscm (90.1 dscf).

- (iii) The average glass pull rate ( $P_{avg}$ ) for the manufacturing line shall be the arithmetic average of three glass pull rate ( $P_i$ ) determinations taken at intervals of at least 30 minutes during each run.

The individual glass pull rates ( $P_i$ ) shall be computed using the following equation

$$P_i = K' L_s W_m M [1.0 - (LOI/100)]$$

Where:

$P_i$  = glass pull rate at interval "i", Mg/hr (ton/hr)

$L_s$  = line speed, m/min (ft/min)

$W_m$  = trimmed mat width, m (ft)

$M$  = mat gram weight, g/m<sup>2</sup> (lb/ft<sup>2</sup>)

LOI = loss on ignition, weight percent

$K'$  = conversion factor,  $6 \times 10^{-5}$  (min-Mg)/(hr-g)  
[ $3 \times 10^{-2}$  (min-ton)/(hr-lb)]

- 1) ASTM D2584-68 (Reapproved 1985) or 94 (incorporated by reference-see 40 CFR 60.17), shall be used to determine the LOI for each run.
- 2) Line speed ( $L_s$ ), trimmed mat width ( $W_m$ ), and mat gram weight ( $M$ ) shall be determined for each run from the process information or from direct measurements.

- (d) To comply with §60.684(d), the owner or operator shall record measurements as required in §60.684 (a) and (b) using the monitoring devices in §60.683 (a) and (b) during the particulate matter runs.

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



Personnel from the Ohio EPA, Central District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Central District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Central District Office.

- g) Miscellaneous Requirements
  - (1) None.