



Environmental
Protection Agency

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

7/31/2012

Kristen Capp
GRAFTECH INTERNATIONAL HOLDINGS INC
11709 Madison Ave.
Lakewood, OH 44107

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 1318458257
Permit Number: P0095798
Permit Type: Renewal
County: Cuyahoga

Certified Mail

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
Yes	SYNTHETIC MINOR TO AVOID TITLE V
Yes	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

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
309 South Fourth Street, Room 222
Columbus, OH 43215

If you have any questions, please contact Cleveland Division of Air Quality at (216)664-2297 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. This permit can be accessed electronically on the DAPCWeb page, www.epa.ohio.gov/dapc, by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: CDAQ



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
GRAFTECH INTERNATIONAL HOLDINGS INC**

Facility ID:	1318458257
Permit Number:	P0095798
Permit Type:	Renewal
Issued:	7/31/2012
Effective:	7/31/2012
Expiration:	7/31/2017



Division of Air Pollution Control
Permit-to-Install and Operate
for
GRAFTECH INTERNATIONAL HOLDINGS INC

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Authorization

Facility ID: 1318458257

Application Number(s): A0027391

Permit Number: P0095798

Permit Description: FEPTIO renewal for a Pilot process line: Includes two processes: P001-A (solvent line) includes hopper/mill (use of dust collector #1), liquid organic material addition (use of the solvent recovery system), calendar rolls, edge trim; P001-B (non-solvent line) includes hopper/mill (use of dust collector #1), calendar rolls, edge trim (use of dust collector #2). Synthetic Minor PTI modification 13-03697 issued on 10/9/2003.

Permit Type: Renewal

Permit Fee: \$0.00

Issue Date: 7/31/2012

Effective Date: 7/31/2012

Expiration Date: 7/31/2017

Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

GRAFTECH INTERNATIONAL HOLDINGS INC
12300 Snow Road
Parma, OH 44130

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

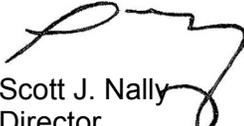
Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Cleveland Division of Air Quality
2nd Floor
75 Erieview Plaza
Cleveland, OH 44114
(216)664-2297

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency



Scott J. Nally
Director



Authorization (continued)

Permit Number: P0095798

Permit Description: FEPTIO renewal for a Pilot process line: Includes two processes: P001-A (solvent line) includes hopper/mill (use of dust collector #1), liquid organic material addition (use of the solvent recovery system), calendar rolls, edge trim; P001-B (non-solvent line) includes hopper/mill (use of dust collector #1), calendar rolls, edge trim (use of dust collector #2). Synthetic Minor PTI modification 13-03697 issued on 10/9/2003.

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

Emissions Unit ID:	P001
Company Equipment ID:	Pilot Process Line
Superseded Permit Number:	13-03697
General Permit Category and Type:	Not Applicable



A. Standard Terms and Conditions

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

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

2. Who is responsible for complying with this permit?

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

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

3. What records must I keep under this permit?

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

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

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

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

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

Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. Unless otherwise specified, facilities subject to one or more synthetic minor restrictions must use Ohio EPA's "Air Services" to submit annual emissions associated with this permit requirement. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

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

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

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

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

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

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

7. What reports must I submit under this permit?

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

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

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

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

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

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

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

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

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

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

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

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

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

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting¹ a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emissions unit once the certification has been submitted to Ohio EPA by the authorized official.

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

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

¹Permittees that use Ohio EPA's "Air Services" can mark the affected emissions unit(s) as "permanently shutdown" in the facility profile 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).

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

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

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

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

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

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

B. Facility-Wide Terms and Conditions

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

C. Emissions Unit Terms and Conditions



1. P001, Pilot Process Line

Operations, Property and/or Equipment Description:

Fuel cell components production line with cyclone separator, quench stage, Venturi scrubber, and 3-stage packed bed scrubber system and two fabric filter dust collectors. Includes two processes: P001-A (solvent line) includes hopper/mill (use of dust collector #1), liquid organic material addition (use of the solvent recovery system), calendar rolls, edge trim; P001-B (non-solvent line) includes hopper/mill (use of dust collector #1), calendar rolls, edge trim (use of dust collector #2).

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. b)(1)b., c)(1), c)(2), c)(3), d)(3), e)(2), f)(1)g-f)(1)k.

b) Applicable Emissions Limitations and/or Control Requirements

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

Table with 2 columns: Applicable Rules/Requirements and Applicable Emissions Limitations/Control Measures. Row a: OAC rule 3745-31-05(A)(3) PTI modification 13-03697 issued on 10/9/2003. Visible particulate emissions (PE) shall not exceed 10% opacity, as a 6-minute average. PE shall not exceed 0.33 lb/hr and 1.44 TPY. Sulfur dioxide (SO2) emissions shall not exceed 2.46 lbs/hr and 10.77 TPY. Organic compound (OC) emissions shall not exceed 45.5 lbs/hr and 199.29 TPY.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
b.	OAC rule 3745-31-05(D)(1)(b) Synthetic Minor to avoid Title V permit requirements and Prevention of Significant Deterioration requirements	Nitrogen oxide (NOx) emissions shall not exceed 5.13 lbs/hr and 22.47 TPY Carbon monoxide (CO) emissions shall not exceed 21.63 lbs/hr and 92.0 TPY
c.	OAC rule 3745-17-07(A)	The visible emission limitation specified by this rule is less stringent than the visible emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
d.	OAC rule 3745-17-11(B)	The particulate emission limitation specified by this rule is less stringent than the particulate emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
e.	OAC rule 3745-18-06(E)(1)	The sulfur dioxide emission limitation specified by this rule is less stringent than the sulfur dioxide emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
f.	OAC rule 3745-21-07(M)(3)	See b)(2)a. below.

(2) Additional Terms and Conditions

- a. Eighty-five percent (85%) or more of the organic compound emissions shall be controlled by the fixed bed activated carbon adsorber system.

c) Operational Restrictions

- (1) The maximum annual production rate and emission limitations for this emissions unit shall not exceed those specified by the formulas listed below, based upon a rolling 12-month summation.
- (2) The permittee shall document the monthly emissions by tracking the monthly Solid Material feed input quantity with the appropriate CO, NOx, OC, PE, and SO2 emission factors, for the Solid Material scenarios, and those developed for any new Solid Material scenarios, to calculate total monthly actual CO, NOx, OC, PE, and SO2 emissions from P001. Any new emission factors/Solid Material scenarios shall require the review and prior approval of Ohio EPA or its authorized representative in the area.

Solid Material Scenario Actual Emission Factor (EF)



- #1 & #2 PE: 2.0 lbs PE/ton of Solid Material
#1 & #2 SO2: 5.0 lbs SO2/ton of Solid Material
#1 & #2 OC: 300.0 lbs OC/ton of Solid Material or Mass Balance
#1 & #2 CO: 186.0 lbs CO/ton of Solid Material
#1 Low NOx: 5.0 lbsNOx/ton of Solid Material
#2 High NOx: 26.5 lbsNOx/ton of Solid Material

Emission Factors (From AP-42) for Combustion of Natural Gas in Dryer Portion of Process:

- #1 & #2 PE: 1.9 lbs PE/mmcf of natural gas
#1 & #2 SO2 0.6 lb SO2/mmcf of natural gas
#1 & #2 OC 5.5 lbs OC/mmcf of natural gas
#1 & #2 CO 84 lbs CO/mmcf of natural gas
#1 Low NOx 100 lbsNOx/mmcf of natural gas
#2 High NOx 100 lbsNOx/mmcf of natural gas

PE Emissions

(2.0 lbs PE/ton) X (tons/month Solid Material fed) X (1 ton/2000 lbs) + (1.9 lbs PE/mmcf) X (amount of mmcf/month) X (1 ton/2000 lbs) = tons/month PE

Sum from j=1 to 12 of Ej < 1.44 tons of PE per rolling 12 month period

Where: E = tons/month PE

SO2 Emissions

(5.0 lbs SO2/ton) X (tons/month Solid Material fed) X (1 ton/2000 lbs) + (0.6 lb SO2/mmcf) X (amount of mmcf/month) X (1 ton/2000 lbs) = tons/month SO2

Sum from m=1 to 12 of Em < 10.77 tons of SO2 per rolling 12 month period

Where: E = tons/month SO2

OC Emissions

(300.0 lbs OC/ton) X (tons/month Solid Material fed) X (1 ton/2000 lbs) + (5.5 lbs

OC/mmcf) X (amount of mmcf/month) X (1 ton/2000 lbs) = tons/month OC

Or Mass Balance

(OC used, tons/month) + (OC initial inventory, tons) -(OC final inventory, tons) + (5.5 lbs OC/mmcf) X (amount of mmcf/month) X (1 ton/2000 lbs) = tons/month OC

$$\sum_{m=1}^{12} E_m < 199.23 \text{ tons of OC per rolling 12 month period}$$

Where: E = tons/month OC

CO Emissions

(186.0 lbs CO/ton) X (tons/month Solid Material fed) X (1 ton/2000 lbs) + (84.0 lbs

CO/mmcf) X (amount of mmcf/month) X (1 ton/2000 lbs) = tons/month CO

$$\sum_{k=1}^{12} E_k < 92.0 \text{ tons of CO per rolling 12 month period}$$

Where: E = tons/month CO

NOx Emissions

$$\sum_{n=1}^y S_n < \text{total tons per month NOx}$$

$$\sum_{m=1}^{12} E_m < 22.47 \text{ tons of NOx per rolling 12 month period}$$

Where:

S = (lbsNOx/ton EF) X (tons/month Solid Material fed) X (1 ton/2000 lbs) + (100 lbs NOx/mmcf) X (amount of mmcf/month) X (1 ton/2000 lbs) = tons/month NOx

y = number of Solid Material scenarios

E = tons/month NOx

- (3) Once twelve (12) months of emission data have been established, the established emission factors and records of Solid Material feed on file for that previous 12-month operating period will be used to comply with the 12-month rolling average emission requirement.

- (4) During Solid Material scenario #1 (low NOx producing Solid Material operations), the wet scrubbing packed towers (Stages 4, 5 and 6) shall be maintained in the following manner:

Scrubber packed tower stage number	Scrubber chemicals	Minimum pH value	ORP* value, millivolts	Minimum pressure drop across packed tower stages 4, 5, & 6, inches water column	Minimum scrubbing solution flow rate, gallons per minute
Stage 4	NaOH	= or > 7	N/A	N/A	= or > 20
Stage 5	NaOH&CINaO	= or > 8	> + 700 (greater than or equal to + 700)	N/A	= or > 20
Stage 6	H ₂ O only	Neutral	N/A	= or > 3.5 and = or < 20	= or > 20

*ORP is oxidation and reduction potential

- (5) During Solid Material Scenario #2 (high NOx producing Solid Material operations), wet scrubbing towers (Stages 4, 5 and 6) shall be maintained in the following manner:

Scrubber packed tower stage number	Scrubber chemicals	Minimum pH value	ORP* value, millivolts	Minimum pressure drop across packed tower stages 4, 5, & 6, inches water column	Minimum scrubbing solution flow rate, gallons per minute
Stage 4	NaOH	= or > 7	N/A	N/A	= or > 20
Stage 5	NaOH&CINaO ₂	= or > 7.5	> + 250 (greater than or equal to plus 250)	N/A	= or > 20
Stage 6	NaOH&NaHS	= or > 10.0	< - 250 (equal to or more negative than minus)	= or > 3.5 and = or < 20	= or > 20

			250)		
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- (6) The pH control and ORP control system shall be calibrated weekly.
 - (7) Maintain the pressure drop (pressure differential) across the wet scrubber in Stages 4, 5 and 6 at least 3.5 inches of water column but no more than 20 inches of water column as measured by transmitting (Magnehelic or equivalent) pressure gauge(s).
 - (8) A scrubbing solution recirculation flow rate to the scrubber of not less than 20 gallons scrubbing solution per minute shall be maintained and monitored by a recycle flow transmitter. The actuation of this flow transmitter at equal or greater than (>) 20 gallons scrubbing solution per minute will be checked semi-annually.
 - (9) Maintain the pressure drop (pressure differential) of the Graphite (formerly called edge trim) dust collector #1 (only when operating) at a minimum of 0.1 inch of water column as measured by transmitting (Magnehelic or equivalent) pressure gauge(s).
 - (10) Maintain the pressure drop (pressure differential) of the Graphite (formerly called edge trim) dust collector #2 (only when operating) at a minimum of 0.1 inch of water column as measured by transmitting (Magnehelic or equivalent) pressure gauge(s).
- d) **Monitoring and/or Recordkeeping Requirements**
- (1) The permittee shall calibrate, operate, and maintain, in good working condition, systems of monitors, in accordance with the manufacturers' recommendations, with any modification deemed necessary by the permittee. The monitoring devices shall be capable of accurately measuring the desired parameters. The permittee shall record on an hourly basis the following parameters whenever solid material is fed into the Advanced Flexible Graphite Production Line:
 - a. the pH levels of the scrubbing solution in Stages 4, 5 and 6;
 - b. ORP level of Stage 5 under Solid Material Scenario #1;
 - c. ORP level of Stages 5 and 6 under Solid Material Scenario #2;
 - d. the total pressure drop (pressure differential) across the scrubber in Stages 4, 5 and 6;
 - e. the scrubbing solution recirculation rate in the scrubber via a flow transmitter. The recirculation rate will be recorded as "made" or "not made" in the flow transmitter. The flow transmitter will be maintained and checked semi-annually. At this time, verification of a flow rate equal or greater than (>) 20 gallons per minute will be recorded. The flow transmitter in the "made" position means the scrubbing solution is flowing at equal or greater than (>) 20 gallons per minute;
 - f. the pressure drop across the graphite dust collector #1 (only when operating); and

- g. the pressure drop across the graphite dust collector #2 (only when operating).

The unit for ORP is millivolts. The unit for pressure drop (pressure differential) is inches of water column. The unit for scrubbing solution recirculation flow rate is gallons per minute (gpm). The monitors shall be calibrated, operated and maintained in accordance with the manufacturers' recommendations, with any modification deemed necessary by the permittee.

- (2) The permittee shall collect and record on an hourly basis the following information for each day the emission control equipment when the emissions unit is in operation (when Solid Material is being fed into the system):
- a. total pressure drop (pressure differential) across the scrubber Stages 4, 5 and 6;
 - b. ORP level of Stage 5 under Solid Material Scenario #1;
 - c. ORP level of Stages 5 and 6 under Solid Material Scenario #2;
 - d. pH readings of the scrubbing solutions in Stages 4, 5 and 6;
 - e. the scrubbing solution recirculation flow transmitter position (i.e., the switch is either "made" or "not made". "Made" means the scrubbing solution is flowing");
 - f. the pressure drop across the graphite dust collector #1 (only when operating); and
 - g. the pressure drop across the graphite dust collector #2 (only when operating).

All parameters will be monitored continuously, however, snapshot average values will be recorded every 10 minutes. After 6 snapshots have been recorded (i.e., one hour's worth), these 6 snapshot values will be averaged and reported as an average hourly value. If an average hourly value exceeds the permit limit, such as below a minimum threshold value or above a maximum threshold value, the system will begin recording the time and the average hourly value of the a deviation. Due to the automated process control loop of this system, any parameter deviations less than or equal to 6 minutes will be considered normal operating conditions and is not recorded/reported as a deviation.

- (3) The permittee shall maintain monthly records of the Solid Material feed input quantity and all other information needed under c), Operational Restrictions, to determine compliance on a rolling 12-month basis.
- (4) The permit to install for this emissions unit (P001) was evaluated based on the actual materials (typically coatings and cleanup materials) and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level

Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: Acetone

TLV (mg/m³): 1,187

Maximum Hourly Emission Rate (lbs/hr): 45.5

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m³): 13,680

MAGLC (ug/m³): 28,265

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be still satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01, and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

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

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

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 quarterly deviation (excursion) reports that identify:
 - a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:
 - i. The rolling 12-month limitations on the CO, NOx, OC, PE, and SO2 emissions.
 - ii. All scrubber pressure drop (pressure differential) readings less than 3.5 or greater than 20 inches of water column.
 - iii. All pH readings of the scrubbing solution that are less than the following values:

Scrubber stage number	Low NOx producing solid material pH value	High NOx producing solid material pH value
4	7	7
5	8	7.5
6	Neutral	10

- iv. All ORP readings that are recorded as indicated below:

Scrubber stage number	Low NOx producing solid material ORP value	High NOx producing solid material ORP value
4	N/A	N/A
5	Less than + 700	Less than + 250
6	N/A	Greater than - 250

- v. Any time period the scrubbing solution recirculation flow transmitter was "not made" (i.e., scrubbing solution was not flowing) when the emissions unit was in operation.
 - vi. Graphite dust collector #1 pressure drop (pressure differential) reading less than 0.1 inch of water column (only when operating).
 - vii. Graphite dust collector #2 pressure drop (pressure differential) reading less than 0.1 inch of water column (only when operating).
- b. the probable cause of each deviation (excursion);
 - c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
 - d. the magnitude and duration of each deviation (excursion).

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

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

- (3) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA eBusiness Center: Air Services by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

f) Testing Requirements

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

- a. Emission Limitation:

0.33 lb PE/hr

- Applicable Compliance Methods:

OAC rule 3745-17-03 (B)(10) using the Methods 1 through 5 of 40 CFR Part 60, Appendix A. If applicable, alternative U.S. EPA test methods may be used with prior approval from the Ohio EPA.

b. Emission Limitation:

2.46 lbs SO₂/hr

Applicable Compliance Methods:

- c. The following test methods shall be employed to determine the control efficiency of the SO₂ emission control equipment (i.e., the percent of reduction in mass emissions between inlet and the outlet of the emission control equipment) serving this emissions unit: OAC rule 3745-18-04 (A) using the Methods 1 through 4 and 6C of 40 CFR Part 60, Appendix A. If applicable, alternative U.S. EPA test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

45.5 lbs OC/hr

Applicable Compliance Methods:

OC Emissions

$(300.0 \text{ lbs OC/ton}) \times (\text{tons/month Solid Material fed}) \times (1 \text{ ton}/2000 \text{ lbs}) + (5.5 \text{ lbs OC/mmcf}) \times (\text{amount of mmcf/month}) \times (1 \text{ ton}/2000 \text{ lbs}) = \text{lbs OC/ month}$

Or Mass Balance

$(\text{OC used, lbs/month}) + (\text{OC initial inventory, lbs}) - (\text{OC final inventory, lbs}) + (5.5 \text{ lbs OC/mmcf}) \times (\text{amount of mmcf/month}) \times (1 \text{ ton}/2000 \text{ lbs}) = \text{lbs OC/month}$

$(\text{OC, lbs/ month}) / (\text{hrs/ month}) = \text{lbs OC/hr}$

e. Emission Limitation:

21.63 lbs CO/hr

Applicable Compliance Methods:

Methods 1 through 4 and 10 and 10B of 40 CFR Part 60, Appendix A. If applicable, alternative U.S. EPA test methods may be used with prior approval from the Ohio EPA.

f. Emission Limitation:

5.13 lbsNO_x/hr

Applicable Compliance Methods:

Methods 1 through 4 and 10 and 7E of 40 CFR Part 60, Appendix A. If applicable, alternative U.S. EPA test methods may be used with prior approval from the Ohio EPA.

g. Emission Limitation:

1.44 TPY PE

Applicable Compliance Methods:

Calculation of the monthly and rolling 12-month emissions using records of restricted amount of material processed and emission factors using the equation as follows:

PE Emissions

(2.0 lbs PE/ton) X (tons/month Solid Material fed) X (1 ton/2000 lbs) + (1.9 lbs PE/mmcf) X (amount of mmcf/month) X (1 ton/2000 lbs) = tons PE/month

$$\sum_{j=1}^{12} E_j < 1.44 \text{ tons of PE per rolling 12 month period}$$

Where: E = tons PE/month

h. Emission Limitation:

10.77 TPY SO₂

Applicable Compliance Methods:

Calculation of the monthly and rolling 12-month emissions using records of restricted amount of material processed and emission factors using the equation as follows:

SO₂ Emissions

(5.0 lbs SO₂/ton) X (tons/month Solid Material fed) X (1 ton/2000 lbs) + (0.6 lb SO₂/mmcf) X (amount of mmcf/month) X (1 ton/2000 lbs) = tons SO₂ /month

$$\sum_{m=1}^{12} E_m < 10.77 \text{ tons of SO}_2 \text{ per rolling 12 month period}$$

Where: E = tons SO₂/month

i. Emission Limitation:

199.29 TPY OC

Applicable Compliance Methods:

Calculation of the monthly and rolling 12-month emissions using records of restricted amount of material processed and emission factors using the equation as follows:

OC Emissions

$$(300.0 \text{ lbs OC/ton}) \times (\text{tons/month Solid Material fed}) \times (1 \text{ ton}/2000 \text{ lbs}) + (5.5 \text{ lbs OC/mmcf}) \times (\text{amount of mmcf/month}) \times (1 \text{ ton}/2000 \text{ lbs}) = \text{tons OC/month}$$

Or Mass Balance

$$(\text{OC used, tons/month}) + (\text{OC initial inventory, tons}) - (\text{OC final inventory, tons}) + (5.5 \text{ lbs OC/mmcf}) \times (\text{amount of mmcf/month}) \times (1 \text{ ton}/2000 \text{ lbs}) = \text{tons OC/month}$$

$$\sum_{j=1}^{12} E_j < 199.29 \text{ tons of OC per rolling 12 month period}$$

Where: E = tons OC/month

j. Emission Limitation:

92.00 TPY CO

Applicable Compliance Methods:

Calculation of the monthly and rolling 12-month emissions using records of restricted amount of material processed and emission factors using the equation as follows:

CO Emissions

$$(186.0 \text{ lbs CO/ton}) \times (\text{tons/month Solid Material fed}) \times (1 \text{ ton}/2000 \text{ lbs}) + (84.0 \text{ lbs CO/mmcf}) \times (\text{amount of mmcf/month}) \times (1 \text{ ton}/2000 \text{ lbs}) = \text{tons CO/month}$$

$$\sum_{k=1}^{12} E_k < 92.0 \text{ tons of CO per rolling 12 month period}$$

Where: E = tons CO/month

k. Emission Limitation:

22.47 TPY NOx

Applicable Compliance Methods:

Calculation of the monthly and rolling 12-month emissions using records of restricted amount of material processed and emission factors using the equation as follows:

NOx Emissions

$$\sum_{n=1}^y S_n < \text{total tons per month NOx}$$

$$\sum_{m=1}^{12} E_k < 22.47 \text{ tons of NOx per rolling 12 month period}$$

Where:

S = (lbsNOx/ton EF) X (tons/month Solid Material fed) X (1 ton/2000 lbs)+ (100 lbsNOx/mmcf) X (amount of mmcf/month) X (1 ton/2000 lbs) = tons NOx/month

y = number of Solid Material scenarios

E = tons NOx/month

Once twelve (12) months of emission data have been established, the established emission factors and records of Solid Material feed on file for that previous 12-month operating period will be used to comply with the 12-month rolling average emission requirements.

g) Miscellaneous Requirements

- (1) None.