



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

8/28/2013

James Fain  
Kraton Polymers U.S. LLC  
2419 State Route 618  
Belpre, OH 45714-0235

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL

Facility ID: 0684010011  
Permit Number: P0113342  
Permit Type: OAC Chapter 3745-31 Modification  
County: Washington

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the permit. A public notice will appear in the Ohio Environmental Protection Agency (EPA) Weekly Review and the local newspaper, The Marietta Times. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically 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. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall  
Permit Review/Development Section  
Ohio EPA, DAPC  
50 West Town Street, Suite 700  
P.O. Box 1049  
Columbus, Ohio 43216-1049

and Ohio EPA DAPC, Southeast District Office  
2195 Front Street  
Logan, OH 43138

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Ohio EPA DAPC, Southeast District Office at (740)385-8501.

Sincerely,

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

Cc: U.S. EPA Region 5 -Via E-Mail Notification  
Ohio EPA-SEDO; Pennsylvania; West Virginia

Certified Mail

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



PUBLIC NOTICE  
Issuance of Draft Air Pollution Permit-To-Install  
Kraton Polymers U.S. LLC

Issue Date: 8/28/2013  
Permit Number: P0113342  
Permit Type: OAC Chapter 3745-31 Modification  
Permit Description: Chapter 31 modification of the G-1 process unit to change the required VOC control equipment for the finishing end of the process from the coal-fired boilers (EUs B005 and B007) to a regenerative thermal oxidizer (RTO); includes administrative modifications to clarify the requirements for the front end dryers specified in PTI 06-07260 issued on March 2, 2004 and address the re-routing of process water from two uncontrolled surge tanks to a pressure tank controlled by the wet end smokeless flare  
Facility ID: 0684010011  
Facility Location: Kraton Polymers U.S. LLC  
2419 State Route 618,  
Belpre, OH 45714-0235  
Facility Description: Synthetic Rubber Manufacturing

The Director of the Ohio Environmental Protection Agency issued the draft permit above. The permit and complete instructions for requesting information or submitting comments may be obtained at: <http://epa.ohio.gov/dapc/permitsonline.aspx> by entering the permit # or: Chad Ferguson, Ohio EPA DAPC, Southeast District Office, 2195 Front Street, Logan, OH 43138. Ph: (740)385-8501





## Permit Strategy Write-Up

1. Check all that apply:

Synthetic Minor Determination

Netting Determination

2. Source Description:

The attached PTI is for the Chapter 31 modification of emissions unit (EU) P004, the G-1 process unit, currently subject to PTI 06-07260 issued on March 2, 2004 and Kraton's extended Title V permit. This Chapter 31 modification permit will authorize the company to change the control equipment required to reduce VOC emissions from the front end dryers, part of the finishing end of the G-1 process. Currently, VOC emissions from the front end dryers are controlled by being combusted in one of two coal-fired boilers (EUs B005 and B007; see PTI P0108853 issued on 1/15/13). However, because the two coal-fired boilers are being replaced with two natural gas-fired boilers (EUs B010 and B011), Kraton is opting to instead install and operate a regenerative thermal oxidizer (RTO) to combust the VOC emissions from the front end dryers. The new RTO will be designed to achieve an overall control efficiency of at least 98% (100% capture), consistent with the current overall control efficiency required to be achieved by the boilers.

3. Facility Emissions and Attainment Status:

Kraton Polymers U.S. LLC is an existing thermoplastic elastomer manufacturing facility located at 2419 State Route 618 in Belpre, Ohio (Washington County). Except for PM<sub>2.5</sub>, Washington County is currently in attainment/unclassifiable for all ambient air quality standards. The facility is considered a major stationary source for NO<sub>x</sub>, SO<sub>2</sub>, CO<sub>2e</sub>, and particulate matter, and is subject to Title V operating permit requirements. In addition, Kraton Polymers is currently operating as a major source of HAP emissions.

4. Source Emissions:

The change in control equipment for the G-1 front end dryers results in small increases in CO and NO<sub>x</sub> emissions from EU P004. These emissions increases were considered in the PSD analysis for the new boilers, but via netting, CO was the only pollutant required to undergo new source review as is detailed in the netting table for the new boiler project below.



Action	EUs	CO	NO <sub>x</sub>	VOC	PE	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	CO <sub>2e</sub>
<b>PSD Step 1</b>									
Installation of two new 249 million BTU/hr boilers (P0108853)	B010 and B011, combined and installation of RTO on P004	165.08	393.54	11.56	32.72	15.92	15.92	111.24	356,958
PSD Thresholds (TPY)		100	40	40	25	15	10	40	75,000
Significant Increase?		Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
<b>PSD Step 2</b>									
Installation of seven new emergency diesel engines (increases)	Z028 and Z029 (now P023 and P024; PBR5/28/08), P018 and P019 (PBR 1/27/09), P021 and P022 (PBR 8/27/12), and new boiler emergency generator (no PBR application to date)	8.94	30.24	2.44	1.88	1.88	1.88	2.93	1,631.22
Removal of five emergency engines (decreases)	P012 and P015 (SD 2/14/08), P017 (SD 4/29/08), P018 and P019 (SD 8/6/12)	-2.26	-10.30	-0.84	-0.73	-0.73	-0.73	-0.69	-380.38
Removal of two existing coal-fired boilers (decreases after permanent shutdown prior to beginning operation of EUs B010 and B011) (decreases)	B005 and B007	-38.86	-705.15	-2.82	-143.19	-53.25	-30.25	-3,371.80	-315,240
Net Emissions Change		132.91	-291.67	9.58	-109.32	-36.18	-13.18	-3,258.32	42,968.84
PSD Thresholds (TPY)		100	40	40	25	15	10	40	75,000
Net Significant Increase?		Yes	No	N/A	No	No	No	No	No

Because the increased CO emissions from the new RTO had to be addressed in the new source review process for the new boilers, the CO emissions limitation is being established in the Chapter 31 modification PTI pursuant to OAC rules 3745-31-10 through -20.

In addition to the netting component, this PTI re-establishes the PSD avoidance synthetic minor restrictions incorporated into the Chapter 31 modification PTI issued final on March 2, 2004. In PTI 06-07260, Kraton accepted a restriction to add no more than 9,200,000 pounds of net carrier solvent/organic solvent process aid to the G-1 process per year and to use controls sufficient to limit VOC emissions to avoid PSD review for that project even though via de-bottlenecking, the throughput capacity of the G-1 process doubled when that process was modified in 2004.

5. Conclusion:

The emissions limits, operational restrictions, monitoring and recordkeeping and reporting requirements in this permit are sufficient to address both the PSD requirements applicable to the CO emissions from



this source, and to also continue to limit VOC emissions from the process sufficient to ensure that the original project is not considered a major modification requiring PSD review.

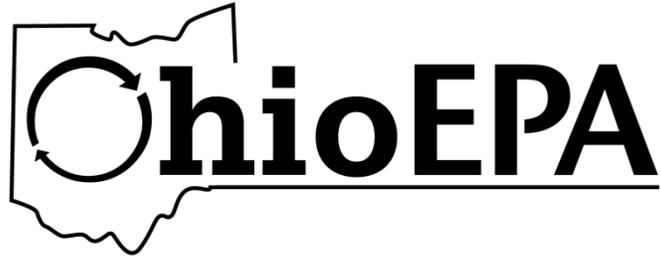
6. Please provide additional notes or comments as necessary:

None

7. Total Permit Allowable Emissions Summary (for informational purposes only):

<u>Pollutant</u>	<u>Tons Per Year</u>
PE/PM <sub>10</sub> /PM <sub>2.5</sub>	10.18
NO <sub>x</sub>	5.97
SO <sub>2</sub>	0.008
CO	31.58
VOC	125.62





**DRAFT**

**Division of Air Pollution Control  
Permit-to-Install  
for  
Kraton Polymers U.S. LLC**

Facility ID: 0684010011  
Permit Number: P0113342  
Permit Type: OAC Chapter 3745-31 Modification  
Issued: 8/28/2013  
Effective: To be entered upon final issuance





**Division of Air Pollution Control**  
**Permit-to-Install**  
for  
Kraton Polymers U.S. LLC

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**Draft Permit-to-Install**  
Kraton Polymers U.S. LLC  
**Permit Number:** P0113342  
**Facility ID:** 0684010011

**Effective Date:** To be entered upon final issuance

## Authorization

Facility ID: 0684010011  
Facility Description: Thermoplastic elastomer manufacturing facility  
Application Number(s): A0007282, A0046937, A0048247, M0002323  
Permit Number: P0113342  
Permit Description: Chapter 31 modification of the G-1 process unit to change the required VOC control equipment for the finishing end of the process from the coal-fired boilers (EUs B005 and B007) to a regenerative thermal oxidizer (RTO); includes administrative modifications to clarify the requirements for the front end dryers specified in PTI 06-07260 issued on March 2, 2004 and address the re-routing of process water from two uncontrolled surge tanks to a pressure tank controlled by the wet end smokeless flare  
Permit Type: OAC Chapter 3745-31 Modification  
Permit Fee: \$1,000.00 *DO NOT send payment at this time, subject to change before final issuance*  
Issue Date: 8/28/2013  
Effective Date: To be entered upon final issuance

This document constitutes issuance to:

Kraton Polymers U.S. LLC  
2419 State Route 618  
Belpre, OH 45714-0235

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, Southeast District Office  
2195 Front Street  
Logan, OH 43138  
(740)385-8501

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



**Draft Permit-to-Install**  
Kraton Polymers U.S. LLC  
**Permit Number:** P0113342  
**Facility ID:** 0684010011

**Effective Date:** To be entered upon final issuance

## Authorization (continued)

**Permit Number:** P0113342  
**Permit Description:** Chapter 31 modification of the G-1 process unit to change the required VOC control equipment for the finishing end of the process from the coal-fired boilers (EUs B005 and B007) to a regenerative thermal oxidizer (RTO); includes administrative modifications to clarify the requirements for the front end dryers specified in PTI 06-07260 issued on March 2, 2004 and address the re-routing of process water from two uncontrolled surge tanks to a pressure tank controlled by the wet end smokeless flare

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>P004</b>
Company Equipment ID:	G-1 Process Unit
Superseded Permit Number:	06-07260
General Permit Category and Type:	Not Applicable



**Draft Permit-to-Install**  
Kraton Polymers U.S. LLC  
**Permit Number:** P0113342  
**Facility ID:** 0684010011  
**Effective Date:** To be entered upon final issuance

## **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, Southeast 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, Southeast 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, Southeast 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, Southeast 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, Southeast 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, Southeast 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, Southeast 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.



**Draft Permit-to-Install**  
Kraton Polymers U.S. LLC  
**Permit Number:** P0113342  
**Facility ID:** 0684010011  
**Effective Date:** To be entered upon final issuance

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



**Draft Permit-to-Install**  
Kraton Polymers U.S. LLC  
**Permit Number:** P0113342  
**Facility ID:** 0684010011

**Effective Date:** To be entered upon final issuance

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) None.
2. Emissions unit P004 contained in this permit is subject to 40 CFR Part 63, Subparts FFFF, H and I. The complete MACT requirements, including the MACT General Provisions, may be accessed via the internet from the Electronic Code of Federal Regulation (e-CFR) website <http://ecfr.gpoaccess.gov> or by contacting the Ohio EPA, Southeast District Office.
3. VOC emissions from the G-1 process unit (emissions unit P004) that are currently combusted in the coal-fired boilers (EUs B005 and B007) will be combusted in a new regenerative thermal oxidizer (RTO) due to the permanent shut down of the coal-fired boilers. Thus, emissions increases from the RTO installation project have been included in the net emissions increase analysis of the boiler installation project.



**Draft Permit-to-Install**  
Kraton Polymers U.S. LLC  
**Permit Number:** P0113342  
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## **C. Emissions Unit Terms and Conditions**



**1. P004, G-1 Process Unit**

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

Miscellaneous organic chemical manufacturing process unit; includes the wet end equipped with a smokeless flare for the control of VOC emissions (98% control efficiency) and a finishing end that includes front end dryers equipped with a cyclone and a baghouse to eliminate particulate and a regenerative thermal oxidizer (RTO) equipped with low-NO<sub>x</sub> burners (98% VOC control efficiency) or one of two coal-fired boilers (EUs B005 or B007) for the control of VOC emissions (98% control efficiency), tail end dryers controlled with a cyclone rated at 0.01 gr/dscf and packaging which includes the load-in and load-out of bulk and bag tanks each controlled with a baghouse rated at 0.01 gr/dscf; Chapter 31 modification of the G-1 process to authorize the control of the VOC emissions from the front end dryers by an RTO instead of the coal-fired boilers (EUs B005 or B007); includes administrative modification to update and clarify the control requirements for the front end dryers and address the re-routing of process water from two uncontrolled surge tanks in the wet end process to a vessel controlled by the smokeless flare; supersedes Chapter 31 modification PTI 06-07260 issued on March 2, 2004

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) d)(14)-(17) and e)(10)

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	Particulate emissions (PE), emissions of particulate matter less than 10 microns (PM <sub>10</sub> ) and emissions of particulate matter less than 2.5 microns (PM <sub>2.5</sub> ) from any stack serving this emissions unit shall not exceed 0.010 gr/dscf.  Visible PE from the smokeless flare shall not exceed five (5) minutes during any 2-hour observation period.  The requirements of this rule are equivalent to the requirements of OAC rule 3745-31-05(D) for volatile organic compounds (VOC).
b.	OAC rule 3745-31-05(D) (Synthetic minor restriction to avoid	VOC emissions shall not exceed 125.62 tons per rolling, 12-month period.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	PSD requirements for VOC and PE; from PTI 06-07260 issued March 2, 2004)	PE and emissions of PM <sub>10</sub> and PM <sub>2.5</sub> shall not exceed 10.18 tons per rolling, 12-month period.  Nitrogen oxides (NO <sub>x</sub> ) emissions shall not exceed 5.97 tons per rolling, 12-month period.  See b)(2)a.-e. and c)(1) below.
c.	OAC rules 3745-31-10 through 20	Carbon monoxide (CO) emissions shall not exceed 31.58 tons per rolling, 12-month period.  See Section B.3. and b)(2)b.-f. below.
d.	OAC rule 3745-31-05(A)(3), as effective 11/30/01	NO <sub>x</sub> emissions shall not exceed 1.36 pounds per hour.  The requirements of this rule include compliance with OAC rule 3745-31-05(D).  See b)(2)g. below
e.	OAC rule 3745-31-05(A)(3)(b), as effective 12/01/06	See b)(2)h. below.
f.	OAC rules 3745-17-07(A) and 3745-17-11(B)	The emission limitations specified by these rules are less stringent than the emission limitations for PE established pursuant to ORC 3704.03(T).
g.	OAC rule 3745-21-07(M)(2) (applies to wet end only)	The control requirements specified by this rule are less stringent than the control requirements established pursuant to ORC 3704.03(T) and OAC rule 3745-31-05(D).
h.	40 CFR Part 63, Subparts H and I (40 CFR 63.160-183 and 40 CFR 63.190-193)  [In accordance with 40 CFR 63.190, equipment leaks from affected equipment in the styrene-butadiene rubber production process at a major source of hazardous air pollutants (HAPs) are subject to the emissions limitations and control measures specified in Subparts H and I.]	See b)(2)i. and b)(2)j. below.
i.	40 CFR Part 63, Subpart A	40 CFR 63.192(b) specifies the



**Effective Date:** To be entered upon final issuance

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	(40 CFR 63.1-16)	provisions of Subpart A that apply to owners and operators of affected facilities subject to Subparts H and I. (40 CFR 63.192(b))
j.	40 CFR Part 63, Subpart FFFF (40 CFR 63.2430-63.2525)  [In accordance with 40 CFR 63.2430, 63.2435 and 63.2440, this emissions unit is an existing miscellaneous organic chemical process unit (MCPU) at a major source of hazardous air pollutants (HAPs). The equipment leaks from affected equipment in this process are subject to the emissions limitations and control measures specified in Subpart FFFF.]	See b)(2)i. and b)(2)k. below.
k.	40 CFR Part 63, Subpart A (40 CFR 63.1-16)	Table 12 to Subpart FFFF of 40 CFR Part 63 – Applicability of General Provisions to Subpart FFFF, specifies the provisions of Subpart A that apply to owners and operators of affected facilities subject to Subpart FFFF. (40 CFR 63.2540)

(2) Additional Terms and Conditions

- a. All PE from the finishing and packaging sections of this emissions unit shall be vented to the particulate control equipment when this emissions unit is in operation.
- b. The VOC emissions from the wet end of the G-1 process shall be controlled by at least 98%, by weight, by routing the VOC emissions from the wet end to a smokeless flare.
- c. The VOC emissions from the front end dryers shall be controlled by at least 98%, by weight, or to a maximum outlet concentration of 20 parts per million (ppm) or less, on a by volume, dry basis, by routing the VOC emissions from the front end dryers to either an operating boiler (EU B005 or B007) or to the RTO.
- d. When VOC emissions from the front end dryers are vented to the boilers (EUs B005 or B007), 98% control efficiency is achieved when the boiler maintains a combustion temperature of approximately 2,500° F and residence time of 1.56 seconds. When VOC emissions from the front end dryers are vented to the RTO, 98% control efficiency is achieved when the RTO maintains a combustion



temperature, as a three-hour block average, of the lower of: 1,550° F; or not less than 50 degrees below the average temperature established during the most recent performance test that demonstrated compliance.

- e. The permittee shall implement a VOC Leak Detection and Repair Program (LDRP) as outlined in the plan submitted to the Ohio EPA Southeast District Office on May 25, 2004 for components in cyclohexane service. The LDRP for this emissions unit may be revised with the written approval of the Ohio EPA.
- f. The emission limitations for NO<sub>x</sub> and CO are established by multiplying the current AP-42 emission factor for smokeless flares times the maximum VOC input to the flare based on the net carrier solvent input limitation. This limitation represents the maximum emissions from the flare from this emissions unit P004. The flare controls other EUs, so the NO<sub>x</sub> and CO and VOC limitations in this permit for emissions from the flare are for the fraction of flare emissions from EU P004.
- g. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC rule 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulation for NAAQS pollutant emissions 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 revision to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limits/control measures no longer apply.
- h. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the SIP.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the NO<sub>x</sub> emissions from this air contaminant source since the uncontrolled potential to emit for NO<sub>x</sub> is less than 10 tons/yr.

- i. A master list of the following equipment in Emissions Unit P004 shall be maintained on-site by the permittee and shall be made available for inspection upon request:
  - i. Equipment in OHAP service subject to 40 CFR 63 requirements; and
  - ii. Equipment in cyclohexane service subject to the LDRP requirements.
- j. The owner or operator of an existing source shall comply with the requirements for existing sources in Subpart I no later than October 24, 1994, except as provided in paragraphs (e)(3) through (e)(6) of 40 CFR 63.190.



- k. The owner or operator of an existing source on November 10, 2003, shall comply with the requirements for existing sources in Subpart FFFF no later than May 10, 2008.

c) Operational Restrictions

- (1) The permittee has requested a federally enforceable limitation on the net amount of carrier solvent/organic process solvent aid added to this emissions unit for the purposes of limiting potential to emit to avoid PSD requirements for VOC, PE, PM<sub>10</sub> and PM<sub>2.5</sub>. Therefore, the maximum net amount of carrier solvent/organic process solvent aid added in this process shall not exceed 9.2 million pounds based on a rolling, 12-month summation. This emissions unit has been in operation for more than 12 months and, as such, the permittee has existing records to generate the rolling, 12-month summation of the net amount of carrier solvent/organic process solvent aid added in this process, upon issuance of this permit. Net means the amount of solvent added to the process minus the amount removed from the process.
- (2) The flare shall be operated at all times when emissions may be vented to it.
- (3) The flare shall be operated with a pilot flame present at all times.
- (4) The flare shall be used only when the net heating value of the gas being combusted is 300 BTU/scf or greater.
- (5) The flare shall meet one of the following criteria:
  - a. The flare shall be designed and operated with an exit velocity of less than 60 ft/sec; or
  - b. The flare shall be designed and operated with an exit velocity equal to or greater than 60 ft/sec, but less than 400 ft/sec, if the net heating value of the gas being combusted is greater than 1000 Btu/scf; or
  - c. The flare shall be designed and operated with an exit velocity less than the velocity, V<sub>max</sub> (see f)(3)c.), but less than 400 ft/sec.
- (6) The boiler tube temperature within the boiler used as the control device for the front end dryer for this emissions unit shall not be less than 600 degrees Fahrenheit when the emissions unit is in operation. Boiler tube temperature serves as a surrogate parameter, which indicates that the minimum temperature of the combustion chamber of the boiler during normal operation is 2200 degrees Fahrenheit.  
  
[Note: this condition is superseded at the time the RTO is commissioned for service.]
- (7) The permittee shall install an interlock that shuts down the feed to the front end dryer in the event that the bypass valve opens to ensure that the VOC permit limitation for the finishing end is not exceeded. Nothing in this permit precludes the permittee from using a safety device when the permittee deems it to be necessary in order to avoid unsafe conditions.



[Note: this condition becomes effective when the RTO is commissioned.]

- (8) See 40 CFR Part 63, Subpart FFFF (40 CFR 63.2430-2525).
  - (9) See 40 CFR Part 63, Subpart H (40 CFR 63.160-183) and 40 CRF Part 63, Subpart I (40 CFR 63.190-193).
- d) **Monitoring and/or Recordkeeping 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 any stack serving this emissions unit, including the flare, but excluding the boilers (EUs B005 and B007). 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 emissions incident; and
    - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions 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) The permittee shall operate and maintain a device (including, but not limited to, a thermocouple, an ultraviolet beam sensor, or an infrared sensor) capable of continuously detecting the presence of the flare pilot flame. All monitoring equipment shall be calibrated, maintained, and operated according to the manufacturer's specifications.
  - (3) The permittee shall keep up-to-date records of the following information:
    - a. Flare design (i.e., steam-assisted, air-assisted, or non-assisted); and
    - b. All visible emission readings, heat content determinations, flow rate measurements, and exit velocity determinations made during any compliance determinations.



- (4) The permittee shall record the following information each day:
- All periods during which the flare was not operating and emissions were vented to it;
  - All periods during which there was no pilot flame; and
  - The operating times for the flare and the continuous monitoring equipment for flame presence.
- (5) When the VOC emissions from the front end dryer of this emissions unit are vented to either boiler (EU B005 or B007), the permittee shall maintain a log of the downtime for the capture (collection) system, the boiler and monitoring equipment when the front end dryer is in operation.
- (6) The permittee shall maintain the following monthly records for this emissions unit:
- The net amount of carrier solvent or organic solvent process aid added to this emissions unit during any calendar month, in pounds;
  - The rolling, 12-month summation (in pounds) of carrier solvent or organic solvent process aids added to this emissions unit, calculated by adding the amount for the current calendar month to the amount for the preceding eleven calendar months;
  - The number of hours the front end dryers was in operation. "In operation" means that product is being dried;
  - The uncontrolled VOC emission rate from the front end dryers, calculated as follows:  
$$U (\text{fdryers}) = \text{VOC mass emission rate at the outlet of the front end dryers, measured during the most recent compliance test (pounds per hour);}$$
  - The number of hours the tail end dryers was in operation. "In operation" means that product is being dried;
  - The uncontrolled VOC emission rate from the tail end dryers, calculated as follows:  
$$U (\text{tdryers}) = \text{VOC mass emission rate at the outlet of the tail end dryers, measured during the most recent compliance test (pounds per hour);}$$
  - The VOC emissions from the finishing end, calculated as follows:  
$$(\text{uncontrolled VOC emissions from the front end dryers, (6)c. X (6)d. above X 98\% RTO or boiler control efficiency) + \text{uncontrolled VOC emissions from the tail end dryers, (6)e. X (6)f. above];}$$



- h. The VOC emissions from the wet end, calculated as follows:
- Uncontrolled VOC emissions  $U(w)$  from the wet end, calculated by:
- Calculating uncontrolled VOC emission emissions in pounds, added to P004 in (6)a. above, minus the uncontrolled VOC emissions from the finishing end end dryer and minus the uncontrolled VOC emissions from the tail end dryer:
- $$(6)a - [(6)c \times (6)d] - [(6)e \times (6)f].$$
- $U(w) \times (100\% - 98\%)$  efficiency of the flare
- i. The VOC emissions from pressure vessels V-751 and V-515 (process wastewater treatment), in pounds, established as the maximum potential value provided by the permittee in the PTI application:  $10.1 \text{ tpy VOC} \times 2,000 \text{ lb/ton} \times 1 \text{ month/12 months} = 1,683 \text{ pounds VOC each month.}$
- j. The VOC emissions from equipment leaks, in pounds, equal to the annual VOC emissions calculations from the most recent annual reporting period required by 40 CFR 63 for OHAPs and by the LDRP for cyclohexane, divided by 12
- k. The rolling, 12-month summation, in tons, of VOC emissions from this emissions unit, calculated by summing (6)g.-j. above, adding the amounts for the current calendar month to the amounts for the preceding eleven calendar months, and multiplying by 1 ton/2,000 pounds;
- l. The PE/PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the finishing end, in pounds;
- m. The rolling, 12-month summation, in tons, of PE/PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the finishing end, calculated by summing the monthly PE/PM<sub>10</sub>/PM<sub>2.5</sub> emission rates, adding the amounts for the current calendar month to the amounts for the preceding eleven calendar months, and multiplying by 1 ton/2,000 pounds;
- n. The NO<sub>x</sub> emissions from the wet end flare and RTO, in pounds, as calculated based on the emissions factors and maximum VOC feed rates presented in the permittee's application;
- o. The rolling, 12-month summation, in tons, of NO<sub>x</sub> emissions from the RTO and wet end flare, calculated by summing the monthly NO<sub>x</sub> emission rates, adding the amounts for the current calendar month to the amounts for the preceding calendar months, and multiplying by 1 ton/2,000 pounds.
- p. The CO emissions from the wet end flare and RTO, in pounds as calculated based on the emissions factors and maximum VOC feed rates presented in the permittee's application;
- q. The rolling, 12-month summation, in tons, of CO emissions from the RTO and wet end flare, calculated by summing the monthly CO emission rates, adding the



amounts for the current calendar month to the amounts for the preceding calendar months, and multiplying by 1 ton/2,000 pounds.

- (7) The permittee shall install and operate an interlock that shuts down the feed to the front end dryer in the event that the bypass valve opens to ensure that the VOC permit limitation for the finishing end is not exceeded. The permittee shall record any time safety devices were used in accordance with the malfunction requirements in OAC rule 3745-15-06.
- (8) A monitoring log shall be maintained in accordance with the requirements of the VOC LDRP plan for equipment in cyclohexane service specified in b)(2)e. The monitoring log shall be retained for a minimum of two years after the date on which the record was made or the report using the monitoring record was prepared. A copy of the monitoring log shall be made available to the Director or an authorized representative of the Director, upon verbal or written request, at any reasonable time.
- (9) The permittee shall operate and maintain a continuous temperature monitor which measures the boiler tube temperature within the boiler used for VOC control (either boiler B005 or B007) of the front dryer when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring device shall be capable of accurately measuring the desired parameter. The temperature monitor shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

[Note: this condition is superseded at the time the RTO is commissioned for service.]

- (10) The permittee shall collect and record the following information, at a minimum frequency of once per twelve-hour shift, for each day the emissions unit is in operation and venting to the boilers:
  - a. The boiler(s) to which the front end dryer is being vented; and
  - b. The boiler tube temperature.

[Note: this condition is superseded when the RTO is commissioned for service.]

- (11) The permittee shall properly install, operate, and maintain a continuous temperature monitor and recorder that measures and records the combustion temperature within the RTO when the emissions unit is in operation, including periods of startup and shutdown. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within  $\pm 1$  percent of the temperature being measured or  $\pm 5$  degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee. The acceptable temperature setting shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate temperature range is established to demonstrate compliance. Following compliance testing, 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 thermal oxidizer was/were in operation, during which the average combustion temperature within the thermal oxidizer 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 of the downtime for the data capture (collection system), control device, and monitoring equipment, when the emissions unit was in operation.

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

[Note: this condition becomes effective when the RTO is commissioned.]

- (12) Whenever the monitored average combustion temperature within the thermal oxidizer 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 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 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.



[Note: this condition becomes effective when the RTO is commissioned for service.]

- (13) The temperature range/limit is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted temperature range/limit based upon information obtained during future performance tests that demonstrate compliance with the allowable emission rate(s) for the controlled pollutant(s). In addition, approved revisions to the temperature range/limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of a minor permit modification.
- (14) The permit-to-install (PTI) application for cyclohexane emissions from emissions unit P004 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 these emissions units 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 emitted using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:
- a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):
    - i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or
    - ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.
  - b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).
  - c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "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):



$$\text{TLV (ug/m}^3\text{)}/10 \times 8/24 \times 5/7 = 4 \text{ TLV}/(24 \times 7) = \text{MAGLC}$$

- d. The following summarizes the results of dispersion modeling for the “worst case” toxic contaminant:

Toxic Contaminant: cyclohexane

TLV (mg/m<sup>3</sup>): 344.21

Maximum Hourly Emission Rate (lbs/hr): 9.71

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 4.93

MAGLC (ug/m<sup>3</sup>): 8,195.48

The permittee, has demonstrated that emissions of cyclohexane from emissions unit P004 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).

- (15) 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:
- a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled;
  - b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and
  - c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the “Toxic Air Contaminant Statute”, ORC 3704.03(F), will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to a non-restrictive change to a parameter or process operation, where compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final FEPTIO prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level



concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

- (16) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute":
    - a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
    - b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);
    - c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and
    - d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.
  - (17) 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
  - (18) See 40 CFR Part 63, Subpart FFFF (40 CFR 63.2430-2525).
  - (19) See 40 CFR Part 63, Subpart H (40 CFR 63.160-183) and 40 CRF Part 63, Subpart I (40 CFR 63.190-193).
- 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 all periods during which the flare pilot flame was not functioning properly. The reports shall include the date, time, and duration of each such period, as well as the cause of each deviation.
  - (3) The permittee shall submit quarterly summaries that include a log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the



associated emissions unit was in operation. These summaries shall be submitted on the same time schedule as the quarterly deviation reports.

- (4) The permittee shall submit quarterly reports which include all visible emission readings conducted pursuant to the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 22 as a result of the presence of visible emissions from the flare.
- (5) The permittee shall submit quarterly deviation (excursion) reports of all times during which the boiler tube temperature within the boiler used as a control device, when the emissions unit was in operation, did not comply with the temperature limitation specified in c)(6).

[Note: this condition is superseded at the time the RTO is commissioned for service.]

- (6) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. each period of time (start time and date, and end time and date) when the average combustion temperature within the RTO was outside of the range specified by the manufacturer and/or outside of the acceptable range following any required compliance demonstration;
  - b. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the RTO;
  - c. each incident of deviation described in "a" or "b" (above) where a prompt investigation was not conducted;
  - d. each incident of deviation described in "a" or "b" where prompt corrective action, that would bring the emissions unit(s) into compliance and/or the temperature within the RTO into compliance with the acceptable range, was determined to be necessary and was not taken;
  - e. each incident of deviation described in "a" or "b" where proper records were not maintained for the investigation and/or the corrective action(s);
  - f. any records of downtime (date and length of time) for the data capture (collection) system, the RTO, and/or the monitoring equipment when the emissions unit(s) was/were in operation; and
  - g. a log of the operating time for the data capture system, RTO, monitoring equipment, and the emissions unit(s).

[Note: this condition becomes effective when the RTO is commissioned for service.]

- (7) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. All exceedances of the 12-month rolling carrier solvent or organic process aid usage rate limitation;



- b. All exceedances of the 12-month rolling VOC emission limitation;
  - c. All exceedances of the 12-month rolling PM/PM10 emission limitation; and
  - d. All exceedances of the 12-month rolling CO emissions limitation.
- (8) The permittee shall submit semi-annual written reports which (a) identify all days during which any visible particulate emissions were observed from any of the stacks serving this emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the appropriate Ohio EPA District Office by January 31 and July 31 of each year and shall cover the previous 6-month period.
- (9) As a part of the VOC Leak Detection and Repair Program specified in b)(2)e., the permittee shall submit semi-annual written reports that give the total number of components in cyclohexane service which were found leaking during the previous six months but which were not repaired within fifteen days and identify all leaking components which cannot be repaired until the next process unit turnaround. These reports shall be submitted to the Ohio EPA Southeast District Office by January 31 and July 31 of each year and shall cover the previous 6-month period.
- (10) The permittee shall submit annual reports that include any changes to any parameter or value used in the dispersion model used to demonstrate compliance with the "Toxic Air Contaminate Statute", ORC 3704.03(F), through the predicted 1 hour maximum concentration. The report should include:
- a. the original model input;
  - b. the updated model input;
  - c. the reason for the change(s) to the input parameter(s); and
  - d. a summary of the results of the updated modeling, including the input changes; and
  - e. a statement that the model results indicate that the 1-hour maximum ground-level concentration is less than 80% of the MAGLC.
- If no changes to the emissions, emissions unit(s), or the exhaust stack have been made during the reporting period, then the report shall include a statement to that effect.\
- (11) See 40 CFR Part 63, Subpart FFFF (40 CFR 63.2430-2525).
- (12) See 40 CFR Part 63, Subpart H (40 CFR 63.160-183) and 40 CRF Part 63, Subpart I (40 CFR 63.190-193).
- f) Testing Requirements
- (1) Compliance with the emissions limitations and/or control requirements specified in b)(1) of these terms and conditions shall be determined in accordance with the following methods:



a. Emissions Limitation:

PE and emissions of PM<sub>10</sub> and PM<sub>2.5</sub> from any stack serving this emissions unit shall not exceed 0.010 gr/dscf.

Applicable Compliance Method:

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

b. Emissions Limitation:

Visible PE from the smokeless flare shall not exceed five (5) minutes during any 2-hour observation period.

Applicable Compliance Method:

If required, visible PE shall be determined according to USEPA Method 22.

c. Emissions Limitation:

Visible PE from any stack serving the the finishing end of the G-1 process shall not exceed 5% opacity as a six-minute average.

Applicable Compliance Method:

If required, visible PE shall be determined according to USEPA Method 9.

d. Emissions Limitation:

VOC emissions shall not exceed 125.62 tons per rolling, 12-month period.

Applicable Compliance Method:

Compliance with the rolling, 12-month emissions limitation for VOC shall be determined by the recordkeeping in d)(6).

e. Emissions Limitation:

PE and emissions of PM<sub>10</sub> and PM<sub>2.5</sub> shall not exceed 10.18 tons per rolling, 12-month period.

Applicable Compliance Method:

Compliance with the rolling, 12-month emissions limitation for PE/PM<sub>10</sub>/PM<sub>2.5</sub> shall be determined by the recordkeeping in d)(6).

f. Emissions Limitation:

NO<sub>x</sub> emissions shall not exceed 5.97 tons per rolling, 12-month period.



Applicable Compliance Method:

Compliance with the rolling, 12-month emission limitation for CO shall be determined by the recordkeeping in d)(6).

g. Emissions Limitation:

CO emissions shall not exceed 31.58 tons per rolling, 12-month period.

Applicable Compliance Method:

Compliance with the rolling, 12-month emission limitation for CO shall be determined by the recordkeeping in d)(6).

h. Emissions Limitations:

NO<sub>x</sub> emissions shall not exceed 1.36 pounds per hour.

Applicable Compliance Method:

Compliance with the lb/hr emissions limitation is based upon the following one-time calculations based on the information provided by in the permittee's application and the NO<sub>x</sub> emissions factors in AP-42 Table 1.4 (7/98) and Table 13.5-1 (1/95):

$$\begin{aligned}
 \text{NO}_x \text{ (lbs/hr)} &= (\text{maximum natural gas fuel combustion in the RTO, in million BTU/hr} \times \text{NO}_x \text{ emissions factor, in pounds of NO}_x \text{ per million scf} \times 1,050 \text{ BTU/scf}) + (\text{maximum VOC combustion in the RTO, in million BTU/hr} \times \text{NO}_x \text{ emissions factor for VOC combustion, in pounds of NO}_x \text{ per million BTU}) + (\text{maximum VOC combustion in the wet end flare, in million BTU/hr} \times \text{NO}_x \text{ emissions factor for VOC combustion in the wet end flare, in pounds of NO}_x \text{ per million BTU}) \\
 &= (1.1 \text{ million BTU/hr} \times 50 \text{ lbsNO}_x \text{/million scf} \times 1 \text{ scf/1,050 BTU}) + (1.9 \text{ million BTU/hr} \times 0.068 \text{ lbNO}_x) + (17.34 \text{ million BTU/hr} \times 0.068 \text{ lbNO}_x \text{/million BTU}) \\
 &= 1.36 \text{ lbs/hr}
 \end{aligned}$$

If required, NO<sub>x</sub> emissions shall be determined according to test Methods 1 - 4, and 7 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

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

a. The emission testing shall be conducted within 180 days of startup of the RTO following implementation of the modifications authorized by this permit.



- b. An emissions test was conducted in 2005 to determine the uncontrolled VOC emissions rates from the front end dryers and from the tail end dryers. These values,  $U_f$  (dryers) and  $U_t$  (dryers), respectively, shall be used in the record keeping requirements in d)(6). The uncontrolled emissions tests were required because a controlled emission rate from the front end of the G-1 unit cannot be determined by testing the boiler exhaust.
- c. Emission testing shall be conducted to demonstrate compliance with the VOC destruction efficiency of the RTO. The destruction efficiency testing shall be conducted in accordance with the test methods and procedures specified in OAC rule 3745-21-10, or an alternative test protocol approved by the Ohio EPA, and shall measure the percent reduction in mass emissions of organic compounds between the inlet and outlet of the RTO. The test method selected shall be based on a consideration of the diversity of organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
- d. As part of the performance test, the permittee shall collect and record the average temperature within the RTO, in degrees Fahrenheit, and include this information with the test results of the emissions report specified below.
- e. USEPA Methods 1 through 4, and 25 or 25A, or other approved USEPA test methods, shall be used to determine the uncontrolled mass emission rate of VOC. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
- f. All emission tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office.
- g. 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.. 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 District Office's refusal to accept the results of the emission test(s).
- h. Personnel from the appropriate Ohio EPA 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.
- i. 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 appropriate Ohio EPA 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 appropriate Ohio EPA District Office.

- (3) Compliance with the operational restrictions in c)(1), (4) and (5) of these terms and conditions shall be determined in accordance with the following methods:

a. Operational Restriction:

The net annual amount of carrier solvent or organic solvent process aid added to this emissions unit shall not exceed 9.2 million pounds as a rolling, 12-month summation. (Where net means the amount of solvent added to the process minus the amount removed from the process).

Applicable Compliance Method:

Compliance shall be determined by the record-keeping in d)(6)a.

b. Operational Restriction:

The flare shall be used only with the net heating value of the gas being combusted at 300 Btu/scf or greater.

Applicable Compliance Method:

The net heating value of the gas being combusted in the flare shall be calculated using the following equation:

$$HT = K [\text{sum of } (C_i) * (H_i), \text{ for } i = 1 \text{ to } n]$$

where:

HT = net heating value of the sample, in MJ/scm [n.b., 1 MJ/scm = 26.81 Btu/scf]; where the net enthalpy per mole of off-gas is based on combustion at 25 degrees Celsius and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 degrees Celsius;

K = constant =  $1.740 \times 10^{-7}$  (1/ppm)(g-mole/scm)(MJ/kcal) [where the standard temperature for (g-mole/scm) is 20 degrees Celsius];

C<sub>i</sub> = concentration of sample component "i" in ppmv on a wet basis, as measured for organics by 40 CFR Part 60, Appendix A, Method 18 and measured for hydrogen and carbon monoxide by ASTM method D1946-77 or D1946-90;

H<sub>i</sub> = net heat of combustion of sample component "i," in kcal/g-mole, at 25 degrees Celsius and 760 mm Hg, where the heat of combustion may be determined using ASTM Method D2382-76, D2382-88 or D4809-95 if published values are not available or cannot be calculated; and



n = number of sample components.

c. Operational Restriction:

The flare shall be designed and operated with an exit velocity of less than 60 ft/sec; or the flare shall be designed and operated with an exit velocity equal to or greater than 60 ft/sec, but less than 400 ft/sec, if the net heating value of the gas being combusted is greater than 1000 Btu/scf; or the flare shall be designed and operated with an exit velocity less than the velocity,  $V_{max}$ , but less than 400 ft/sec.

Applicable Compliance Method:

The actual exit velocity of the flare shall be determined by dividing the volumetric flow rate of gas being combusted (in units of emission standard temperature and pressure), as determined by the methods and procedures in 40 CFR Part 60, Appendix A, Method 2, 2A, 2C or 2D, by the unobstructed (free) cross-sectional area of the flare tip. The maximum permitted velocity,  $V_{max}$ , shall be determined using the following equation:

$$\text{Log } 10(V_{max}) = (HT + 28.8)/31.7$$

where:

$V_{max}$  = maximum permitted velocity, in m/sec;  
HT = the net heating value determined in accordance with f)(2)b.;  
28.8 = a constant; and  
31.7 = a constant.

g) Miscellaneous Requirements

(1) None.