

Commonwealth of Kentucky
Division for Air Quality
STATEMENT OF BASIS / SUMMARY

Conditional Major, Operating
PERMIT ID: F-25-002
Owensboro Specialty Polymers Inc.
5529 HWY. 2830, Owensboro, KY 42303
January 7, 2025
Durga Patil, Permit Review Branch
Source ID: 21-059-00155
Agency Interest #: 972
Activity ID: APE20220001

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Permit: F-25-002

SECTION 1 - SOURCE DESCRIPTION

SIC Code and description: 2821, Plastics Materials, Synthetic and Resins, and Nonvulcanizable Elastomers.

Single Source Det. ☐ Yes ☒ No If Yes, Affiliated Source AI:

Source-wide Limit ☒ Yes ☐ No If Yes, See Section 4, Table A

28 Source Category ☒ Yes ☐ No If Yes, Category: Chemical Process Plants

County: Daviess

Nonattainment Area ☒ N/A ☐ PM₁₀ ☐ PM_{2.5} ☐ CO ☐ NO_x ☐ SO₂ ☐ Ozone ☐ Lead

If yes, list Classification:

PTE* greater than 100 tpy for any criteria air pollutant ☐ Yes ☒ No

If yes, for what pollutant(s)?

☐ PM₁₀ ☐ PM_{2.5} ☐ CO ☐ NO_x ☐ SO₂ ☐ VOC

PTE* greater than 250 tpy for any criteria air pollutant ☐ Yes ☒ No

If yes, for what pollutant(s)?

☐ PM₁₀ ☐ PM_{2.5} ☐ CO ☐ NO_x ☐ SO₂ ☐ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) ☒ Yes ☐ No

If yes, list which pollutant(s): Vinylidene Chloride

PTE* greater than 25 tpy for combined HAP ☒ Yes ☐ No

*PTE does not include self-imposed emission limitations.

Description of Facility:

Owensboro Specialty Polymers, Inc. (OSP) in Owensboro, KY manufactures a range of specialty polymers. Daran® and Serfene® PVdC high-barrier coatings for papers, films and foils are used in packaging of many nationally known food products - candy bar wrappers, corn chip packages and breakfast cereal packages. The plant also produce Daratak® and Everflex® PVAc emulsions for adhesives, case and carton sealing, and latex paints. These products are manufactured using either a batch or semi-continuous feed process. The major raw materials used at the site are acrylonitrile, vinylidene chloride, vinyl acetate, various acrylates and acrylic acids.

There are four process groups at the facility: (1) reactor trains, (2) raw material storage tanks, (3) product storage tanks with ancillary piping, and (4) wastewater treatment facilities. Generally, the four remaining product lines that draw raw materials from the raw material storage tanks are polymerized in the reactor trains, and the product is then transferred to the product storage tanks to await shipment.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-25-002

Activity: APE20220001

Application Received: 12/27/2021

Application Complete: 1/10/2025

Permit Action: ☐ Initial ☒ Renewal ☐ Significant Rev. ☐ Minor Rev. ☐ Administrative

Construction/Modification Requested? ☐ Yes ☒ No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action ☒ Yes ☐ No

Description of Action:

APE20190001 – Off-permit change notification: The application received September 3, 2019 was for the use of ethyl acrylate in its reactor process Train R-210 or R-230 and will be completely used up in the process. The application was accepted as an off-permit change notification Section 17 of 401 KAR 52:030.

APE20220001 – Renewal: The application received January 5, 2022 is for the renewal of the permit F-17-032 with no changes requested. Later the facility requested that EU007 and EU013 be removed from the permit.

APE20230001 – Minor Permit Revision: The application received November 30, 2023 was for the addition of a used 21MMBtu/hr natural gas fired boiler manufactured 2011, at the facility. The boiler is subject to 401 KAR 59:015 and 40 CFR 60, Subpart Dc. During the renewal process, the facility identified that the boiler has not been constructed and that there were currently no plans to construct the boiler. Hence this emission unit does not exist in the permit.

APE20240001 – 502(b)(10) change notification: The application received March 22, 2024 is for the use of a rental boiler rated at 14.7MMBtu/hr at the facility for a period of 6 months.

APE20240002 – 502(b)(10) change notification: The application received April 2, 2024 is for the replacement of Reactor 210 with vessel in kind with no changes in emissions profile from the reactor train.

APE20240003 – Administrative amendment: The application received July 17, 2024 is for the addition of new raw material storage vessels, a new blending vessel and associated piping for the production of a new non-reacted product N-serve 24. The units are insignificant activities and subject to 401 KAR 63:020 for which modeling was submitted by the facility on April 1, 2025.

F-25-002 Emission Summary		
Pollutant	2023 Actual (tpy)	PTE F-25-002 (tpy)
CO		3.28
NOx		0.71
PT		2.32
PM ₁₀		2.32
PM _{2.5}		2.32
SO ₂		0.22
VOC	4.57	54.25
Lead		0.000046
Greenhouse Gases (GHGs)		
Carbon Dioxide		120.62
Methane		0.005
Nitrous Oxide		0.001
CO ₂ Equivalent (CO ₂ e)		121.03
Hazardous Air Pollutants (HAPs)		
Acrylic Acid	0.000306	0.199
Acrylonitrile	0.07582	2.90**
Benzene		0.001
Cumene		0.007
Formaldehyde		0.001
Hydrochloric Acid		0.020
Methanol		0.068
Methyl Acrylate		7.946
Methyl Methacrylate	0.0697	7.477
Toluene		0.0003
Vinyl Acetate		0.607
Vinylidene Chloride	3.972	35.337*
Xylenes (Total)		0.234
Combined HAPs:		54.79*

* limited to less than major source threshold

** limited to 0.58 tpy for compliance with 401 KAR 63:020

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

**Emission Point 08: DARAN (Reactor Train R-200);
Emission Point 09: DARAN (Reactor Train R-210);
Emission Point 10: DARAN (Reactor Train R-220);
Emission Point 11: DARAN (Reactor Train R-230);
Emission Point 18: DARAN (Reactor Train R-51);
Emission Point 12: Specialty R-1117 (Reactor Train R-650);
Emission Point 14: Specialty R-1117 (Reactor Train R-450); and
Emission Point 16: Raw Materials Tank MMA 512**

Initial Construction Date: See below

Process Description:

Emission Point 08: DARAN (Reactor Train R-200);

Install Date: 5/1961; Maximum Output: 547.7 lb/hr/batch

- “A” Monomer mix tank V-201 with vents: VT 1301-1 (manual/emergency vent on tanks V-201 and V-211) and VT 1308-1 (steam ejector (vacuum) vent for monomer mix tanks A, B, and C, and reactors A, B, and C)
- DESM tank V-205 (open top)
- “A” Continuous catalyst tank V-203 with vent VT 1308-10
- SEDAR tank V-207 with vent VT 1301-6
- “A” Reactor R-200 with vents: VT 1301-2 (manual/emergency vent on reactor R-200) and VT 1308-1 (steam ejector (vacuum) vent for monomer mix tanks A, B, and C, and reactors A, B, and C)
- Pre-stripped latex tanks V-241 and V-242 (PSLT 1 and 2) with vent VT 1308-6 (manual vent on PSLTs 1 and 2)
- “A” Stripper S-200 in series with “A” condenser H-200 and “A” vacuum receiver VR-H200, with vent VT 1308-3 (two-stage steam ejector (vacuum) vent for the “A” stripper)
- Stripped latex tanks V-251 and V-252 (SLT 1 and 2) with vents: VT 1308-8 (steam ejector (vacuum) vent for SLTs 1, 2, 3, and 4, and VT 1308-12 (manual vents on SLTs 1 and 2)
- Fugitives: 1 light liquid pump; 1 gas/vapor valve; 32 light liquid valves; 2 heavy liquid valves; 2 PR valves; 258 flanges/connectors; 2 open-ended lines and 6 sampling connections.

Emission Point 09: DARAN (Reactor Train R-210);

Install Date: 4/1967; Maximum Output: 618.3 lb/hr/batch

- “B” Monomer mix tank V-211 with vents: VT 1301-1 (manual/emergency vent on tanks V-201 and V-211); VT 1308-1 (steam ejector (vacuum) vent for monomer mix tanks A, B, and C, and reactors A, B, and C)
- DESM tank V-215 (open top)
- “B” Continuous catalyst tank V-213 with vent: VT 1308-11
- SEDAR tank V-207 with vent: VT 1301-6
- “B” Reactor R-210 with vents: VT 1301-3 (manual/emergency vent on reactor R-210); VT 1308-1 (steam ejector (vacuum) vent for monomer mix tanks A, B, and C, and reactors A, B, and C)
- Pre-stripped latex tanks V-243 and V-244 (PSLT 3 and 4) with vent: VT 1308-7 (manual vent on PSLTs 3 and 4)
- “B” Stripper S-210 in series with “B” condenser H-210 and “B” vacuum receiver VR-H210, with vent and VT 1308-4 (two-stage steam ejector (vacuum) vent for the “B” stripper)

**Emission Point 08: DARAN (Reactor Train R-200);
Emission Point 09: DARAN (Reactor Train R-210);
Emission Point 10: DARAN (Reactor Train R-220);
Emission Point 11: DARAN (Reactor Train R-230);
Emission Point 18: DARAN (Reactor Train R-51);
Emission Point 12: Specialty R-1117 (Reactor Train R-650);
Emission Point 14: Specialty R-1117 (Reactor Train R-450); and
Emission Point 16: Raw Materials Tank MMA 512**

- Stripped latex tanks V-253 and V-254 (SLT 3 and 4) with vents: VT 1308-8 (steam ejector (vacuum) vent for SLTs 1, 2, 3, and 4, and VT 1308-13 (manual vents on SLTs 3 and 4)
- Fugitives: 2 light liquid pumps; 1 gas/vapor valve; 31 light liquid valves; 2 heavy liquid valves; 1 PR valve; 257 flanges/connectors; 2 open-ended lines and 6 sampling connections.

Emission Point 10: DARAN (Reactor Train R-220);

Install Date: 7/1985; Maximum Output: 1197.8 lb/hr/batch

- “C” Monomer mix tank V-221 with vents: VT 1301-4 (manual/emergency vent on tank V-221); VT 1308-1 (steam ejector (vacuum) vent for monomer mix tanks A, B, and C, and reactors A, B, and C)
- DESM tank V-225 with vent: VT-1308-9
- “C” Continuous catalyst tank V-223
- SEDAR tank V-207 with vent: VT 1301-6
- “C” Reactor R-220 with vents: VT 1301-4 (manual/emergency vent on reactor R-220) and VT 1308-1 (steam ejector (vacuum) vent for monomer mix tanks A, B, and C, and reactors A, B, and C)
- “C” Stripper S-220 in series with “C” condenser H-220 with vents: VT 1308-5 (two-stage steam ejector (vacuum) vent for the “C” stripper) and VT-1308-2 (manual vent on “C” stripper S-220)
- Fugitives: 1 light liquid pump; 1 gas/vapor valve; 31 light liquid valves; 2 heavy liquid valves; 1 PR valve; 257 flanges/connectors; 2 open-ended lines and 6 sampling connections.

Emission Point 11: DARAN (Reactor Train R-230);

Install Date: 6/1958; Maximum Output: 1151.9 lb/hr/batch

- Monomer mix tank V-231 with vents: VT 1104-18 (emergency vent on tank V-231) and VT 1104-23 (vent for monomer mix tank V-231)
- Continuous catalyst tank V-233 with vent: VT 1304-2
- SEDAR tank V-207 with vent: VT 1301-6
- Reactor R-230 with vents: VT 1301-7 (manual/emergency vent on reactor R-230) and VT 1304-1 (steam ejector vent for reactor R-230)
- Continuous feed tank V-653 with vent: VT 6004-1**
- Continuous feed tank V-654 with vent: VT-6004-2**
- Fugitives: 1 heavy liquid pump; 31 light liquid valves; 1 heavy liquid valve; 1 PR valve; 257 flanges/connectors; 3 open-ended lines and 7 sampling connections.

*** Tanks are shared between EP11 and EP12, production occurs only in one EP at any time.*

Emission Point 18: DARAN (Reactor Train R-51);

Install Date: 6/1958; Maximum Output: 858.1 lb/hr/batch

- Monomer mix tank V-34 with vents: VT 1104-18 (emergency vent on monomer mix tank V-231) and VT 1104-23 (manual vent on monomer mix tank V-231)

**Emission Point 08: DARAN (Reactor Train R-200);
Emission Point 09: DARAN (Reactor Train R-210);
Emission Point 10: DARAN (Reactor Train R-220);
Emission Point 11: DARAN (Reactor Train R-230);
Emission Point 18: DARAN (Reactor Train R-51);
Emission Point 12: Specialty R-1117 (Reactor Train R-650);
Emission Point 14: Specialty R-1117 (Reactor Train R-450); and
Emission Point 16: Raw Materials Tank MMA 512**

- Reactor R-51 with vents: VT 1104-1 (steam ejector vent on reactor R-51); VT 1104-12 (steam out vent for reactor R-51) and VT 1104-25 (manual/emergency vent for R-51)
- Condenser H-R51 with vents: VT 1104-12 and VT 1104-38
- Vacuum receiver VR-R51 with vent
- VT 1104-7 (emergency vent for R-51 vacuum receiver)

Emission Point 12: Specialty R-1117 (Reactor Train R-650);

Install Date: 7/1997; Maximum Output: 195.7 lb/hr/batch

- Monomer mix tank V-652 with vent: VT 6004-3 (manual vent on monomer mix tank V-652)
- Reactor R-650 with vents: VT 6001-1 (manual vent on reactor R-650); VT 6001-2 (emergency vent on reactor R-650) and VT 6004-2 (emergency vent on reactor R-650)
- Continuous feed tank V-653 with vent: VT 6004-1**
- Continuous feed tank V-654 with vent: VT-6004-2**
- Fugitives: 1 light liquid pump; 4 gas/vapor valves; 54 light liquid valves; 1 PR valve; 66 flanges/connectors and 1 sampling connection

*** Tanks are shared between EP11 and EP12, production occurs only in one EP at any time.*

Emission Point 14: Specialty R-1117 (Reactor Train R-450);

Install Date: 7/1997; Maximum Output: 390.8 lb/hr/batch

- Reactor R-460 with vents: VT 1604-3 (steam ejector vent through vacuum receiver VR-450 for reactors R-450 and R-460 and tank V-451); VT 1604-1 (manual vent for reactors R-450 and R-460) and VT 1604-4 (sampling hood vent from reactors R-450 and R-460)
- Packaging hood with vent: VT 1603-1 (exhaust fan vent in Hypol packaging area)
- Fugitives: 1 light liquid pump; 2 heavy liquid pumps; 4 gas/vapor valves; 2 light liquid valves; 32 heavy liquid valves; 3 heavy liquid agitators; 167 flanges/connectors; 5 open-ended lines and 9 sampling connections

Emission Point 16: Raw Materials Tank MMA 512;

Install Date: 1996

21,256.42 gallon capacity, throughput 869788.5 gallons/year, cone roof fixed tank, VP 44mm Hg at 26C; 0.280 ton/hr/batch.

Applicable Regulation:

401 KAR 60:005, Section 2(2)(r), 40 C.F.R. 60.110b through 60.117b (Subpart Kb), Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modifications Commenced After July 23, 1984. Applies only to the MMA tank 512 in emission point 16, however there are no requirements.

**Emission Point 08: DARAN (Reactor Train R-200);
Emission Point 09: DARAN (Reactor Train R-210);
Emission Point 10: DARAN (Reactor Train R-220);
Emission Point 11: DARAN (Reactor Train R-230);
Emission Point 18: DARAN (Reactor Train R-51);
Emission Point 12: Specialty R-1117 (Reactor Train R-650);
Emission Point 14: Specialty R-1117 (Reactor Train R-450); and
Emission Point 16: Raw Materials Tank MMA 512**

State-Origin Requirement:

401 KAR 63:020, Potentially hazardous matter or toxic substances.

Non-applicable Regulation:

401 KAR 60:005 Section 2(2)(r), 40 C.F.R. 60.110b through 60.117b (Subpart Kb), Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.

- This regulation does not apply to emission points 8, 9 and 11 due to the fact that these units commenced construction before the applicability dates identified in the regulation
- This regulation does not apply to emission points 10, 12 and 14 based on the size of the tanks.

401 KAR 60:005 Section 2(2)(bbb), 40 C.F.R. 60.480 through 60.489 (Subpart VV), Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006.

- This regulation does not apply to emission points 8, 9 and 11 due to the fact that these units commenced construction before the applicability dates identified in the regulation.
- This regulation does not apply to emission points 10, 12 and 14 due to the fact that the facility does not meet the definition of "synthetic organic chemicals manufacturing industry". Synthetic organic chemicals manufacturing industry means the industry that produces, as intermediates or final products, one or more of the chemicals listed in 40 CFR 60.489. While the facility does use one or more chemicals listed in 40 CFR 60.489 as raw materials, none of the listed chemicals are produced as intermediates or final products.

401 KAR 63:002 Section 2(4)(a), 40 C.F.R. 63.100 through 63.107, Tables 1 through 4 (Subpart F), National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry.

401 KAR 63:002 Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater.

401 KAR 63:002 Section 2(4)(c), 40 C.F.R. 63.160 through 63.183, Tables 1 through 4 (Subpart H), National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.

- These regulations do not apply the facility as the facility has taken limits of 9 tpy of single HAP and 22.5 tpy of combined HAPs to be an area source of HAP emissions.

**Emission Point 08: DARAN (Reactor Train R-200);
Emission Point 09: DARAN (Reactor Train R-210);
Emission Point 10: DARAN (Reactor Train R-220);
Emission Point 11: DARAN (Reactor Train R-230);
Emission Point 18: DARAN (Reactor Train R-51);
Emission Point 12: Specialty R-1117 (Reactor Train R-650);
Emission Point 14: Specialty R-1117 (Reactor Train R-450); and
Emission Point 16: Raw Materials Tank MMA 512**

401 KAR 60:005 Section 2(2)(ggg), 40 C.F.R. 60.560 through 60.566 (Subpart DDD), Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry does not apply to any emission points as the facility is not involved in the manufacture of polypropylene, polyethylene, polystyrene, or poly (ethylene terephthalate) as defined in 40 CFR 60.561.

401 KAR 60:005 Section 2(2)(ttt), 40 C.F.R. 60.700 through 60.708 (Subpart RRR), Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes.

- This regulation does not apply to emission points 8, 9, 10 and 11 as these were constructed before June 29, 1990.
- This regulation does not apply to emission points 12 and 14 as the facility is not a "synthetic organic chemicals manufacturing industry". Synthetic organic chemicals manufacturing industry means the industry that produces, as intermediates or final products, one or more of the chemicals listed in 40 CFR 60.489. While the facility does use one or more chemicals listed in 40 CFR 60.489 as raw materials, none of the listed chemicals are produced as intermediates or final products.

401 KAR 63:002 Section 2(4)(e), 40 C.F.R. 63.210 through 63.217 (Subpart J), National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production.

401 KAR 63:002 Section 2(4)(n), 40 C.F.R. 63.480 through 63.507, Tables 1 through 9 (Subpart U), National Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins.

401 KAR 63:002 Section 2(4)(vv), 40 C.F.R. 63.110 through 63.1336, Tables 1 through 9 (Subpart JJJ), National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins.

401 KAR 63:002 Section 2(4)(lll), 40 C.F.R. 63.2430 through 63.2550, Tables 1 through 12 (Subpart FFFF), National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing.

- These regulations do not apply the facility as the facility has taken limits of 9 tpy of single HAP and 22.5 tpy of combined HAPs to be an area source of HAP emissions.

401 KAR 63:002 Section 2(4)(tttt), 40 C.F.R. 63.11494 through 63.211503, Tables 1 through 9 (Subpart VVVVVV), National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources.

401 KAR 63:002 Section 2(4)(zzzzz), 40 C.F.R. 63.11579 through 63.11588, Tables 1 through 6 (Subpart BBBB) National Emission Standards for Hazardous Air Pollutants for Area Sources: Chemical Preparations Industry.

**Emission Point 08: DARAN (Reactor Train R-200);
Emission Point 09: DARAN (Reactor Train R-210);
Emission Point 10: DARAN (Reactor Train R-220);
Emission Point 11: DARAN (Reactor Train R-230);
Emission Point 18: DARAN (Reactor Train R-51);
Emission Point 12: Specialty R-1117 (Reactor Train R-650);
Emission Point 14: Specialty R-1117 (Reactor Train R-450); and
Emission Point 16: Raw Materials Tank MMA 512**

401 KAR 63:002 Section 2(4)(ddddd), 40 C.F.R. 63.11860 through 63.12005, Tables 1 through 10 (Subpart HHHHHHH) National Emission Standards for Hazardous Air Pollutant Emissions for Polyvinyl Chloride and Copolymers Production.

- These regulations do not apply the facility as the facility has taken limits of 9 tpy of single HAP and 22.5 tpy of combined HAPs to be an area source of HAP emissions and does not contain the target HAPs identified in the regulation.

Comments:

The permittee shall keep records of the total number of batches of each product family produced (e. g., DAXAD, DARAN, etc.) and the average weight of each batch on a monthly basis. Tank modeling results must be available for inspection.

Emission Master, version 7.2 or other methods approved by the Division for Air Quality shall be used to calculate emissions from the raw material storage tanks.

Glacial methacrylate tank V-701 with vent: VT 3004-1 associated with Emission Point 011 was removed in renewal process APE20220001.

Emission Point 07: DAXAD (Reactor Train R-360) and Emission Point 013: Polyvinyl Acetate (PVA) have been removed during the renewal process APE20220001.

Emission Unit 17: Wastewater Treatment Tank System

Initial Construction Date: 1/1999

Process Description:

Wastewater from the reactor trains is collected and transmitted to the wastewater treatment tank system, consisting of a series of concrete tanks that equalize and pretreat the wastewater stream. The three chambered concrete tank system has three 7.5 hp aerators (one per chamber) and a total capacity of 240,000 gallons.

Applicable Regulation:

401 KAR 63:020, Potentially hazardous matter or toxic substances. [STATE-ORIGIN REQUIREMENT]

Non-applicable Regulation:

401 KAR 63:002 Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater does not apply as the source is not subject to 40 CFR 63, Subpart F.

Emission Unit 17: Wastewater Treatment Tank System

Comments:

Engineering Estimate is used to determine emission factor. The emissions calculations are based on the amount of DCE discharged with the wastewater in 1996 from a material balance using a 1997 wastewater characterization data table.

Emission Unit 18 Diesel-fired Emergency Generator (Rated @ 423 HP)

Initial Construction Date: 2/2017

Process Description:

Manufacture Date: 2005; Installation Date: 2005

Fuel usage: 21 gallons/hr

Applicable Regulation:

401 KAR 63.002 Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

Comments:

The permittee must comply with the requirements in Item 4. in Table 2d to 40 CFR 63, Subpart ZZZZ.

Testing Requirements/Results N/A

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
90 tpy of VOC emissions	401 KAR 52:030, <i>Federally-enforceable permits for nonmajor sources</i>	Source-wide
9.0 tpy of individual HAP emissions	To preclude major source status for HAP	
22.5 tpy of combined HAP emissions	To preclude major source status for HAP	
0.580 tpy of acrylonitrile	401 KAR 52:030, Section 10, for compliance with 401 KAR 63:020	

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 63:020, <i>Potentially hazardous matter or toxic substances.</i>	08, 09, 10, 18, 12, 14, 16 and 17
401 KAR 60:005, Section 2(2)(r), 40 C.F.R. 60.110b through 60.117b (Subpart Kb), Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modifications Commenced After July 23, 1984	16
401 KAR 63.002 Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	18

Table C - Summary of Precluded Regulations:

N/A

Table D - Summary of Non Applicable Regulations:

Non Applicable Regulations	Emission Unit
401 KAR 60:005 Section 2(2)(r), 40 C.F.R. 60.110b through 60.117b (Subpart Kb), Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.	SOURCE WIDE
401 KAR 60:005 Section 2(2)(bbb), 40 C.F.R. 60.480 through 60.489 (Subpart VV), Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006	SOURCE WIDE

Non Applicable Regulations	Emission Unit
401 KAR 60:005 Section 2(2)(ggg),), 40 C.F.R. 60.560 through 60.566 (Subpart DDD), Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry.	SOURCE WIDE
401 KAR 60:005 Section 2(2)(ttt), 40 C.F.R. 60.700 through 60.708 (Subpart RRR), Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes.	
401 KAR 63:002 Section 2(4)(a), 40 C.F.R. 63.100 through 63.107, Tables 1 through 4 (Subpart F), National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry.	
401 KAR 63:002 Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater.	
401 KAR 63:002 Section 2(4)(c), 40 C.F.R. 63.160 through 63.183, Tables 1 through 4 (Subpart H), National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.	
401 KAR 63:002 Section 2(4)(e), 40 C.F.R. 63.210 through 63.217 (Subpart J), National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production.	
401 KAR 63:002 Section 2(4)(n), 40 C.F.R. 63.480 through 63.507, Tables 1 through 9 (Subpart U), National Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins.	
401 KAR 63:002 Section 2(4)(vv), 40 C.F.R. 63.110 through 63.1336, Tables 1 through 9 (Subpart JJJ), National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins.	
401 KAR 63:002 Section 2(4)(lll), 40 C.F.R. 63.2430 through 63.2550, Tables 1 through 12 (Subpart FFFF), National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing.	
401 KAR 63:002 Section 2(4)(tttt), 40 C.F.R. 63.11494 through 63.211503, Tables 1 through 9 (Subpart VVVVVV), National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources.	
401 KAR 63:002 Section 2(4)(zzzzz), 40 C.F.R. 63.11579 through 63.11588, Tables 1 through 6 (Subpart BBBB) National Emission Standards for Hazardous Air Pollutants for Area Sources: Chemical Preparations Industry.	
401 KAR 63:002 Section 2(4)(ddddd), 40 C.F.R. 63.11860 through 63.12005, Tables 1 through 10 (Subpart HHHHHH) National Emission Standards for Hazardous Air Pollutant Emissions for Polyvinyl Chloride and Copolymers Production.	

Air Toxic Analysis

401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances*

The Division for Air Quality (Division) has performed modeling using AERMOD on April 23, 2025 and May 5, 2025 of potentially hazardous matter or toxic substances (Acrylic Acid, Acrylonitrile, Benzene, Cumene, Formaldehyde, Hexane; N-Hexane, Hydrochloric Acid, Methyl Acrylate, Methyl Methacrylate, Toluene, Vinylidene Chloride and Xylenes (Total)) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020. The modeling conducted on April 23, 2025 is used to set the limit for Acrylonitrile of 0.58 tpy.

Single Source Determination

N/A

SECTION 5 - PERMITTING HISTORY

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
V-00-004	Title V	Log No. F936	2/12/1999	7/1/2000		
V-05-053	Title V Renewal	APE20050004	8/3/2005	9/21/2005	Renewal Permit	N/A
F-07-029	Initial Issuance	APE20060003	4/28/2007	8/17/2007	Initial Conditional Major Permit	N/A
F-07-029 R1	Minor Revision	APE20080001	1/28/2008	2/6/2008	Administrative Change	N/A
F-07-029 R2	Adminis. Amend.	APE20100002	4/7/2010	4/22/2010	Name/Owensrship Change	N/A
F-13-001	Renewal	APE20120001	1/3/2013	4/18/2013	Renewal	N/A
F-17-032	Renewal	APE20170004	3/10/2017	8/28/2017	Renewal	N/A

SECTION 6 – PERMIT APPLICATION HISTORY

None.

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS	– Ambient Air Quality Standards
BACT	– Best Available Control Technology
Btu	– British thermal unit
CAM	– Compliance Assurance Monitoring
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
ESP	– Electrostatic Precipitator
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
HF	– Hydrogen Fluoride (Gaseous)
MSDS	– Material Safety Data Sheets
mmHg	– Millimeter of mercury column height
NAAQS	– National Ambient Air Quality Standards
NESHAP	– National Emissions Standards for Hazardous Air Pollutants
NO _x	– Nitrogen Oxides
NSR	– New Source Review
PM	– Particulate Matter
PM ₁₀	– Particulate Matter equal to or smaller than 10 micrometers
PM _{2.5}	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
SO ₂	– Sulfur Dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds