Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS / SUMMARY

Conditional Major, Operating
PERMIT ID: F-24-069
Avantor Performance Materials, Inc.
7001 Martin Luther King Jr. Blvd
Paris KY 40361
March 14, 2025
Durga Patil, Permit Review Branch

SOURCE ID:	21-017-00015
AGENCY INTEREST:	294
ACTIVITY:	APE20230001

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SECTION 1 - SOURCE DESCRIPTION

SIC Code and description: 2869, Industrial Organic Chemicals, NEC (except aliphatics, carbon bisulfide, ethyl alcohol, cyclopropane, diethylcyclohexane, napthalene sulfonic acid, synthetic hydraulic fluids, and fluorocarbon gases).

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, except ethanol production facilities producing ethanol by natural fermentation under NAICS codes 325193 or 312140

County: Bourbon
Nonattainment Area ☒ N/A ☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ Ozone ☐ Lead
If yes, list Classification:

PTE* greater than 100 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☒ PM_{10} ☒ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☒ VOC

PTE* greater than 250 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☒ PM_{10} ☒ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) ☒ Yes ☐ No
If yes, list which pollutant(s): phenol

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

*PTE does not include self-imposed emission limitations.

Description of Facility:
Avantor Performance Materials, Inc., formerly known as Mallinckrodt Baker Inc., owns and operates a chemical purification and packaging facility located at 7001 Martin Luther King Jr. Blvd, Paris, Kentucky. The source manufactures, packages, stores, and distributes multiple grades of solvents, acids, solutions, and bonded phase products. The significant emission units at the Paris facility include tank truck unloading, solvent and ether distillation, solvent and ether packaging, acid packaging, dry material packaging, two steam boilers, a fire-tube boiler, and fugitive emissions. Insignificant activities include various natural gas-fired space heaters, solution blending and packaging, flammable solutions packaging, "hazard room" operations, FACSFlow™ mixing, acid storage tanks, a cooling tower, and various fuel oil and solution storage tanks as well as other operations.

The facility has historically taken limits on PM and VOC through control or operational limitations to qualify for a conditional major permit.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-24-069 Activity: APE20230001

Application Received: 7/13/2023 Application Complete: 12/26/2024

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: An application was received 2/14/2019 for updates to insignificant activity for installation of one 3,600 gallon mix tank - specialty blending tank as part of the Specialty Blending and Packaging Opertions. The application qualifies under 401 KAR 52:030, Section 17(1)(a) - off-permit changes.

APE20220001: An application was received 3/1/2022 for increase in processing capacity at EP 009 with an increase in particulate matter emissions. The change qualifies under 401 KAR 52:030, Section 17(2) - 502(b)(10) changes.

APE20230001: The renewal application received 7/13/2023 requested renewal of the F-18-038 permit with inclusion of the previous submitted applications under Section 17 of 401 KAR 52:030 along with removal of various emission units (still #1, #2 and #3), removal of rail car unloading EP 023, HCL storage vessel (EP 025) and updates to insignificant activities. The facility also requested change to emission unit descriptions to match that used at facility. In an email communication, the facility also indicated that the CMAS for Nickel Compounds Formulation Operation which is a subset of the equipment in the Solution Blending and Packaging area of the Paris Plant, which was thought as being in operation and remain in the permi during the renewal application, was later reqeusted to be removed from the renewal permit. In addition, the Division conducted source-wide modeling based on update to the RSL value for chloroform since the last conducted modeling which has resulted in a site wide limit of 0.776 tpy for chloroform and has been added to Section D of the permit. Also, the facility no longer packages hdyrofluoric acid at this site.

APE20240001: An application was received 1/2/2024 is for the addition of an existing parts washer subject to 401 KAR 59:185 and updates to insignificant activity list with changes to label printers, addition of ash residue remover and addition of chemical warming ovens which are steam heated, with the change qualifying under 401 KAR 52:030, Section 17(2) - 502(b)(10) changes.

F-24-069 Emission Summary				
Pollutant	2023 Actual (tpy)	PTE F-18-038 (tpy)	Change (tpy)	PTE F-24-069 (tpy)
CO	0.74	9.88	0.19	10.07
NOx	1.905	14.61	20.16	34.77
PT	3.394	32.07	4.36	36.43(≤ 90*)
PM_{10}	3.394	32.07	4.36	36.43 (≤ 90*)
$PM_{2.5}$	1.809	15.22	1.95	17.17 (≤ 90*)
SO_2	0.02	3.46	0	3.46 (≤ 90*)
VOC	3.768	28.39*	-6.8	21.87* (≤ 90*)
Lead	0.0003	0.0035	0.0007	0.0042
Greenhouse Gases (GHGs)				
Carbon Dioxide	1,058	13,996	6.0	14,002
Methane	0.04	0.254	-0.004	0.25
Nitrous Oxide	00.0388	0.249	0.001	0.25
CO_2 Equivalent (CO_2e)	--	14,076	6.0	14,082
Hazardous Air Pollutants (HAPs)				
2-Nitrophenol	--	0.0087	0.2613	0.270
Acetonitrile	0.0044	0.026	0.711	0.737
Acrylamide	0.0020	0.737	-0.106	0.631
Benzene	--	0.0009	---	0.0009
Catechol	--	0.003	0.07	0.073
Chloroacetic Acid	5.85E-05	0.038	1.873	1.911
Chloroform	0.0216	0.963	-0.003	0.96 (0.776*)
Dichlorobenzene	--	0.0008	0.0142	0.015
Dichloromethane	0.0968	6.329	-4.025	2.304
Ethyl Benzene	--	2.87E-06	--	2.87E-06
Ethylene Glycol	--	2.89E-04	--	0.0002
Formaldehyde	--	0.011	0.0036	0.0114
Hexane; N-Hexane	0.094	6.932	-2.485	4.454
Hydrochloric Acid	0.00017	9.080*	-0.969	8.111 (≤ 0.768*)
Hydrofluoric Acid	--	0.0065	0.0065	---
Hydroquinone	0.00017	0.112	3.459	3.571
Maleic Anhydride	--	0.0027	0.0623	0.065
Naphthalene	--	0.0015	0.1375	0.139
Phenol	0.00156	23.638*	8.952	32.59 (≤ 3.737*)
Phthalic Anhydride	--	0.0011	0.1059	0.107
Selenium, Total (as Se)	--	0.0028	0.0832	0.086
Toluene	--	0.0009	-1E-04	0.0008
Xylenes (Total)	--	1.97E-04	1.13	1.1302
Combined HAPs:	--	52.880*	3.37	57.38 (≤ 22.5*)

*****Represents the limit taken by the facility through operational limits in the permit

- **SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS**

Emission Units 001 and 002 Indirect Heat Exchangers				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
PM (Nat. Gas)	0.451 lb/MMBtu Each boiler	401 KAR 59:015, Section 4(1)(c)	7.6 lb PM/MMscf AP-42 Table 1.4-2	Burning natural gas
	20% opacity	401 KAR 59:015, Section 4(2)	--	
SO_2 (Nat. Gas)	2.059 lb/MMBtu Each boiler	401 KAR 59:015, Section 5(2)	0.6 lb SO_2/MMscf AP-42 Table 1.4-2	
PM (Fuel Oil)	0.451 lb/MMBtu Each Boiler	401 KAR 59:015, Section 4(1)(c)	2.0 lb PM/$_{1000}$ gal; 7 lb PM/$_{1000}$ gal; 14.2 lb PM/$_{1000}$ gal #2, 4, 6 Fuel Oil AP-42 Table 1.3-1	Burning Fuel Oils
	20% opacity	401 KAR 59:015, Section 4(2)	--	Daily qualitative visible observations
SO_2 (Fuel Oil)	2.059 lb/MMBtu Each Boiler	401 KAR 59:015, Section 5(1)	71 lb SO_2/$_{1000}$ gal; 150 lb SO_2/$_{1000}$ gal; 188 lb SO_2/$_{1000}$ gal #2, 4, 6 Fuel Oil AP-42 Table 1.3-1	Burning Fuel Oils based on the fuel oil sulfur content limitations.
SO_2	≤ 90 TPY source-wide for any combination of fuels.	To Preclude 401 KAR 52:020.	See Emission Factor for #2, #4 and #6 Fuel Oil below	Sulfur Content Limit % weight: No. 2 Fuel Oil ≤ 0.5% No. 4 Fuel Oil ≤ 1.0% No. 6 Fuel Oil ≤ 1.2%

Initial Construction and Modification Date: 001: 12/1977; 002: 12/1977; Both Modified in 2012

Process Description:
Boilers #1 and #2 are for space heating and process heating.

001 Cleaver Brooks 100/600-300-15C Boiler #1
Primary Fuel: Natural Gas *(modified 2012)*
Secondary Fuel: No. 2, 4, and 6 Fuel Oils
Construction Date: December 15, 1977
Control Device: None
Capacity: 12.5 MMBtu/hr

002 Cleaver Brooks 100/600-300-15C Boiler #2
Primary Fuel: Natural Gas *(modified 2012)*
Secondary Fuel: No. 2, 4, and 6 Fuel Oils
Construction Date: December 15, 1977
Control Device: None
Capacity: 12.5 MMBtu/hr

Applicable Regulations:
401 KAR 59:015, New Indirect Heat Exchangers, applies to indirect heat exchangers with a capacity of more than one (1) MMBtu/hr and less than 250 MMBtu/hr that commenced construction after April 9, 1972. The requirements of this rule apply to boilers 1 and 2 (emission units 001 and 002), which were each installed after April 9, 1972.

Emission Units 001 and 002 Indirect Heat Exchangers

State origin Requirement:
401 KAR 63:020, Potentially hazardous matter or toxic substances applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances as defined in Section 2 of 401 KAR 63:020, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division.

Non-Applicable Regulations:
401 KAR 60:005 Section 2(2)(d), 40 C.F.R. 60.40c through 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, applies to steam generating units for which construction, modification, or reconstruction commenced after June 9, 1989 and have a design heat input capacity of 100 MMBtu/hr or less but greater than or equal to 10 MMBtu/hr. Emission units 001 and 002 are not subject to the requirements of this rule because each boiler was installed prior to June 9, 1989 and has not undergone any modification or reconstruction, as defined in 40 CFR 60, Subpart A. The moficiation cited above is to identify natural gas as primary fuel wth fuel oils as secondary fuel to identify these boilers as gas-fired boiled per 40 CFR 63, Subpart JJJJJJ.

401 KAR 63:002, Section 2(4)(jjjjj), 40 C.F.R. 63.11193 through 63.11237, Tables through 63. 8 (Subpart JJJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, applies to oil-fired boilers and are classified as existing units when commenced on or before June 4, 2010. Emission units 001 and 002 have the capability to burn No. 2, No. 4, and No. 6 Fuel Oils, however the boilers are operated as gas-fired boilers as defined in 40 CFR 63.11237. Therefore, pursuant to 40 CFR 63.11195(e), 40 CFR 63, Subpart JJJJJJ is not applicable.

Precluded Regulations:
401 KAR 52:020, Title V Permits, the permittee has requested voluntary limits on fuel oil sulfur content and SO_2 emissions to preclude applicability of 401 KAR 52:020.

Comments:
To qualify as gas-fired boilers as defined in 40 CFR 63.11237, the source requested that emission units 001 and 002 be identified as gas-fired units and burn liquid fuel only during periods of natural gas curtailment, natural gas supply emergencies, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined 48 hours during any calendar year.

To preclude 401 KAR 52:020, source-wide emissions of SO_2 shall not exceed 90 tpy for any combination of fuels during any 12 consecutive month period. Compliance shall be shown with the use of sulfur content limits of No. 2 Fuel Oil $\leq$ 0.5% by weight, No. 4 Fuel Oil $\leq$ 1.0% by weight, and No. 6 Fuel Oil $\leq$ 1.2% by weight. A statement from the fuel supplier that certifies the sulfur content of the fuel oil shall be kept and the permittee shall monitor monthly and 12 consecutive month total fuel oil and natural gas usage rates and SO_2 emission rates for each boiler.

Permit shield for the non-applicable regulations was requested in minor permit revision received March 13, 2012 and filed under APE20120002 and accepted by the Division in the permit F-13-019.

Emission Unit 003 Indirect Heat Exchanger				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
SO_2	≤ 90 TPY source-wide for any combination of fuels.	To Preclude 401 KAR 52:020.	See Emission Factor for #2 Fuel Oil below.	Sulfur Content Limit % weight: No. 2 Fuel Oil ≤ 0.5%
PM	0.445 lb/MMBtu	401 KAR 59:015, Section 4(1)(c)	3.25 lb PM/$_{1000}$ gal AP 42 Tables 1.3-1 & 1.3-6	Burning No. 2 Fuel Oil
Opacity	20% opacity	401 KAR 59:015, Section 4(2)	--	Monthly qualitative visible observations
SO_2	2.013 lbs/MMBtu	401 KAR 59:015, Section 5(1)	71 lb SO_2/$_{1000}$ gal AP-42 Chapter 1.3-1	Burning No. 2 Fuel Oil based on the sulfur content limitation.

Initial Construction Date: 003: 1/2006

Process Description:

003 **Indirect Heat Exchanger**

Description: Burnham CW-50-O-GP fire-tube boiler for process heat.
Primary Fuel: No. 2 Fuel Oil
Construction Date: January 10, 2006
Control Device: None
Capacity: 1.44 mmBtu/hr

Applicable Regulations:

401 KAR 59:015, New Indirect Heat Exchangers, applies to indirect heat exchangers with a capacity of more than one (1) MMBtu/hr and less than 250 MMBtu/hr that commenced construction after April 9, 1972. The requirements of this rule apply to emission unit 003, which was installed after April 9, 1972.

401 KAR 63:002, Section 2(4)(jjjjj), 40 C.F.R. 63.11193 through 63.11237, Tables through 63. 8 (Subpart JJJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, applicable to oil-fired boilers and classified as an existing unit when commenced on or before June 4, 2010, applies to emission units 003. Pursuant to 40 CFR 63.11223(e), the permittee shall conduct a tune-up every five (5) years as specified in 40 CFR 63.11223(b)(1) through (7). Each five (5)-year tune-up must be conducted no more than 61 months after the previous tune-up.

Non-Applicable Regulations:

401 KAR 60:005 Section 2(2)(d), 40 C.F.R. 60.40c through 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, applies to steam generating units for which construction, modification, or reconstruction commenced after June 9, 1989 and have a design heat input capacity of 100 MMBtu/hr or less but greater than or equal to 10 MMBtu/hr. Emission unit 003 was installed after June 9, 1989, but has a design heat input capacity less than 10 MMBtu/hr, so it is not subject to the requirements of 40 CFR 60, Subpart Dc.

Emission Unit 003 Indirect Heat Exchanger

Precluded Regulations:
401 KAR 52:020, Title V Permits, the permittee has requested voluntary limits on fuel oil sulfur content to preclude applicability of 401 KAR 52:020.

Comments:
Emission unit 003 had been removed by Permit F-08-006 R3, however the boiler was reinserted back into Permit F-13-019 R1, resulting in the applicability of 40 CFR 63, Subpart JJJJJJ.

To preclude 401 KAR 52:020, source-wide emissions of SO_2 shall not exceed 90 tpy for any combination of fuels during any 12 consecutive month period. Compliance shall be shown with the use of a sulfur content limit of No. 2 Fuel Oil ≤ 0.5% by weight. A statement from the fuel supplier that certifies the sulfur content of the fuel oil shall be kept and the permittee shall monitor monthly and 12 consecutive month total fuel oil usage rates and SO_2 emission rates for the boiler.

Permit shield requested. in initial conditional major application received 1-15-2008 and filed under APE20080001.

Emission Unit FW01 380 hp Emergency Diesel-Fired Firewater Pump Engine

Initial Construction Date: 8/1977

Process Description:

FW01	**Stationary Reciprocating Internal Combustion Engine (RICE)**
Description:	Emergency Diesel-Fired Firewater Pump Engine
Model:	Cummins NT 855-F2
Primary Fuel	No. 2 Fuel Oil (Diesel)
Construction Date:	August 1, 1977
Control Device:	None
Power Output:	380 hp

Applicable Regulations:
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 applies to stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. Pursuant to 40 CFR 63.6590(a)(1)(iii), emission unit FW01 is an affected source under 40 CFR 63, Subpart ZZZZ and is classified as existing stationary RICE located at minor source of HAP emissions.

Comments:
Pursuant to 40 CFR 63.6603(a), Item 4 in Table 2d to 40 CFR 63, Subpart ZZZZ, for the emergency stationary CI RICE, the permittee must change oil and filter every 500 hours of operation or or within 1 year + 30 days of the previous change, whichever comes first; inspect air cleaner every 1,000 hours of operation or or within 1 year + 30 days of the previous change, whichever comes first; and inspect all hoses and belts every 500 hours of operation or or within 1 year + 30 days of the previous change, whichever comes first, and replace as necessary.

Continuous compliance with 40 CFR 63.6603(a), Item 4 in Table 2d to 40 CFR 63, Subpart ZZZZ is shown by following the methods specified in Item 9 in Table 6 to 40 CFR 63, Subpart ZZZZ.

Emission Unit EG01 20 hp Emergency Natural Gas-Fired Generator

Initial Construction Date: 8/1977

Process Description:

EG01	**Stationary Reciprocating Internal Combustion Engine (RICE)**
Description:	Emergency Natural Gas-Fired Generator
Model:	Waukesha 180GKB
Primary Fuel	Natural Gas
Construction Date:	August 1, 1977
Power Output:	20 hp

Applicable Regulations:

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 applies to stationary RICE located at major and area sources of HAP emissions. Pursuant to 40 CFR 63.6590(a)(1)(iii), emission unit EG01 is an affected source under 40 CFR 63, Subpart ZZZZ and is classified as existing stationary RICE located at minor source of HAP emissions.

Comments:

Pursuant to 40 CFR 63.6603(a), Item 5 in Table 2d to 40 CFR 63, Subpart ZZZZ, for the emergency stationary SI RICE, the permittee must change oil and filter every 500 hours of operation or or within 1 year + 30 days of the previous change, whichever comes first; inspect spark plugs every 1,000 hours of operation or or within 1 year + 30 days of the previous change, whichever comes first, and replace as necessary; and inspect all hoses and belts every 500 hours of operation or or within 1 year + 30 days of the previous change, whichever comes first, and replace as necessary

Continuous compliance with 40 CFR 63.6603(a), Item 5 in Table 2d to 40 CFR 63, Subpart ZZZZ is shown by following the methods specified in Item 9 in Table 6 to 40 CFR 63, Subpart ZZZZ.

Maximum fuel usage of the engine was estimated using a conservative Break Specific Fuel Consumption (BSFC) of 10,500 Btu/bhp-hr based on a naturally aspirated engine from Table 6 of the Santa Barbara County Air Pollution Control District (APCD) Piston IC Engine Technical Reference Document.

<table>
<tr><th colspan="6">Emission Unit 007 - Bulk to Bulk Packaging and Supersack,
Emission Unit 008 - Suite #10, Suite #11 & Suite #12,
Emission Unit 009 – Suite #9,
Emission Unit 010 – Suite #8/Suite #6,
Emission Unit 011 Dry Salts Packaging</th></tr>
<tr><th>Pollutant</th><th>Emission Limit or Standard (lb/hr)</th><th>Regulatory Basis for Emission Limit or Standard</th><th colspan="2">Emission Factor Used and Basis (lb PM/ton)</th><th>Compliance Method</th></tr>
<tr><td rowspan="7">PM</td><td rowspan="6">E = 2.34 for P ≤ 1000 lb/hr; E = 3.59P$^{0.62}$ for P > 1000 lb/hr upto 60,000 lb/hr</td><td rowspan="6">401 KAR 59:010, Section 3(2)</td><td>Emission Unit</td><td>Emission Factor</td><td rowspan="6">Compliance with PM emission limits is shown when operating the associated particulate control systems at all times that Emission Units 007 through 011 are in operation.</td></tr>
<tr><td>007</td><td>20.57</td></tr>
<tr><td>008</td><td>66.12</td></tr>
<tr><td>009</td><td>114.29</td></tr>
<tr><td>010</td><td>44.72</td></tr>
<tr><td>011</td><td>20.57</td></tr>
<tr><td>Less than 20% opacity</td><td>401 KAR 59:010, Section 3(1)(a)</td><td colspan="2">--</td><td>Weekly qualitative visible observations</td></tr>
</table>

P is process weight rate in tons/hr

Initial Construction Date: 007: 5/1978; 008: 5/1978; 009: 5/1978; 010: 5/1978; 011: 5/1978

Process Description:
Dry materials packaging occurs in several areas at the plant. In each of these areas, except the Supersack Packaging area, containers are filled with dry materials by hand, resulting primarily in particulate matter emissions and some particulate HAP emissions. In the relocated Supersack Packaging area, supersacks containing dry materials will be hoisted onto a framework which allows the supersacks to be elevated as they are unloaded. The dry material will be gravity-fed through flexible tubing to a hopper and then pneumatically conveyed to the filling stations/suites at which smaller containers will be filled with the material being unloaded. Emissions from the packaging station/suites are generated as the dry materials are dropped into containers until the supersack has been emptied. Dust from filling is captured using air-pickup ducts and routed to a particulate control device.

Control Device for Emission Units 007 and 011: Torit DC Baghouse, control efficiency 99%.
Control Device for Emission Units 008, 009, 010: Cambridge Cartridge Filters, control efficiency 95%.

007 Bulk to Bulk Packaging and Supersack
Description: Tables and Scales
Construction Date: May 1, 1978
Control Device: Torit DC Baghouse, control efficiency 99%
07(a) Bulk to Bulk Packaging Room; Capacity: 1,500 lbs/hr
07(b) Supersack Packaging; Capacity: 1,500 lbs/hr

008 Suite #10, Suite #11 and Suite #12 (previously known as Cool Room)
Description: Tables and Scales
Construction Date: May 1, 1978
Control Device: Cambridge Cartridge Filters, control efficiency 95%

**Emission Unit 007 - Bulk to Bulk Packaging and Supersack,
Emission Unit 008 - Suite #10, Suite #11 & Suite #12,
Emission Unit 009 – Suite #9,
Emission Unit 010 – Suite #8/Suite #6,
Emission Unit 011 Dry Salts Packaging**

08(a) **Suite #10;** Capacity: 700 lbs/hr (previously identified as Cool Room Station 10)
08(b) **Suite #11;** Capacity: 700 lbs/ hr (previously identified as Cool Room Station 11)
08(c) **Suite #12;** Capacity: 700 lbs/ hr (previously identified as Cool Room Station 12)

009 Suite #9 (previously known as Poison Room – Station #9)
Description: Tables and Scales
Construction Date: May 1, 1978
Control Device: Cambridge Cartridge Filters, control efficiency 95%
Capacity: 700 lbs/hr

010 Suite #8/Suite #6 (previously known as Dust & Stain Room – Station #8/Station #6)
Description: Tables and Scales
Construction Date: May 1, 1978
Control Device: Cambridge Cartridge Filters, control efficiency 95%
10(a) **Suite #6**; Capacity:700 lbs/hr (previously identified as Station #6)
10(b) **Suite #8**; Capacity:700 lbs/hr (previously identified as Dust & Stain Room – Station #8)

011 Dry Salts Packaging
Description: Tables and Scales
Construction Date: May 1, 1978
Control Device: Torit DC Baghouse, control efficiency 99%
11(a) Bulk to Bulk Packaging; Capacity:1,500 lbs/hr
11(b) Dry Salts Pack Suite #2; Capacity:700 lbs/hr (previously identified as Dry Salt Pack Station #2)
11(c) Dry Salts Pack Suite #3; Capacity:700 lbs/hr (previously identified as Dry Salt Pack Station #3)
11(d) Dry Salts Pack Suite #4; Capacity:700 lbs/hr (previously identified as Dry Salt Pack Station #4)
11(e) Suite #1; Capacity: 700 lbs/hr (previously identified as Station #1)
11(f) Suite #5; Capacity: 700 lbs/hr (previously identified as Station #2)

Applicable Regulations:
401 KAR 59:010, New Process Operations applies to each affected facility or source, associated with a process operation, which is not subject to another emission standard with respect to particulates in 401 KAR 59, commenced on or after July 2, 1975.

State origin Requirement:
401 KAR 63:020, Potentially hazardous matter or toxic substances applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances as defined in Section 2 of 401 KAR 63:020, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division.

**Emission Unit 007 - Bulk to Bulk Packaging and Supersack,
Emission Unit 008 - Suite #10, Suite #11 & Suite #12,
Emission Unit 009 – Suite #9,
Emission Unit 010 – Suite #8/Suite #6,
Emission Unit 011 Dry Salts Packaging**

Comments:
Emission factors are based on manufacturer specifications for control devices used at each emission unit.

Emission Unit 012 Automatic and Hand Filling Liquid Acids

Initial Construction Date: 5/1978

Process Description:
Model/Make: MRM/Elgin GRC-A
Construction Date: May 1, 1978
Control Device: Packed-Bed Scrubber (Caustic Scrubber #1), control efficiency 95%

Containers are filled with acids either directly from bulk trucks or from the acid storage tanks in the acids packaging area. Bottles are filled using an automatic packaging system and drums and totes are filled at the bulk filling line. Bulk containers are filled at a single station. Additionally, up to eight side stations are used to transfer acids from drums and totes to smaller containers. Under normal operations, all emissions from the acid packaging area, with the exception of a single side station, are collected by air pickup ducts at individual work stations and routed to a caustic scrubber for control. The acid hood side station is vented to the atmosphere via a separate stack. Hydrofluoric (HF) acid and ammonium fluoride are handled and packaged in a separate room from other acids due to safety concerns. The HF room consists of three tanks that are used to mix HF solutions which are sent to either an automatic packaging line or a bulk filling station. Under normal operations, all emissions from the HF room are captured via air pickup ducts and routed to the same caustic scrubber for control.

Applicable Regulations:
401 KAR 63:020, Potentially hazardous matter or toxic substances applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances as defined in Section 2 of 401 KAR 63:020, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division. This regulation applies to emission unit 012.

Comments:
The permittee shall maintain the pressure drop across Caustic Scrubber #1 and scrubbing liquid flowrate within the ranges recommended by the manufacturer or established during the most recent stack test.

Preventive maintenance shall be performed for Caustic Scrubber #1 in accordance with the manufacturer's recommendations, and the scrubber shall be operated and maintained in accordance with manufacturer’s specifications.

**Emission Unit 013 Solvent Packaging Room,
Emission Unit 017 Ether/Solvent Packaging Room,
Emission Unit 024 Truck Unloading**

Initial Construction Date: 013: 5/1978; 017: 5/1980; 023: 5/1978; 024: 5/1978; 025: 5/1978

Process Description:

Solvent Packaging Area

013 Solvent Packaging Room
Model/Make: NJM PGP-PAKA
Construction Date: May 1, 1978

Solvent can be packaged directly from bulk containers within the solvent packaging room. Bottles are filled in this room using one of two automatic filling lines. Additionally, solvent can be packaged into drums and totes in this room using one of three drum/tote stations or into 5-gallon pails at the pail filling station, which can involve loading or unloading clean drums or dedicated Returnable Drum System (RDS) containers. Finally, drums and totes of solvents can be repackaged into smaller containers at up to eleven mobile side stations. The lines that carry products from the unloading areas to the packaging lines and stations must be cleaned out whenever operators switch from packaging one product to another. In order to clean out the lines, operators first drain as much of the material remaining in the line into drums, which is either packaged elsewhere at the plant or shipped offsite as waste. When necessary, the lines are blown out using nitrogen at a flow rate of up to 6,000 cubic feet per hour for up to 15 minutes and followed by air at a flow rate of up to 3,000 cubic feet per hour for up to 5.75 hours.

Emissions from all operations in the solvent packaging room, with the exception of one mobile side station, are captured via an air pick-up system at each work station and routed to the atmosphere by a two speed fan via a single stack. The hazard hood side station is vented to the atmosphere via a separate stack.

Solvent/Ether Packaging Area

017 Ether/Solvent Packaging Room
Model/Make: Mallinckrodt Baker Designed
Construction Date: May 1, 1980

Purified compounds are packaged in the ether/solvent packaging room. Bottles are filled in this room using one automatic filling line with semi-dedicated fill ports. Additionally, ether and other similar compounds can be transferred from a tank truck directly to the auto line, a drum filling station, two mobile side stations, which can involve loading or unloading clean drums or dedicated Returnable Drum System (RDS) containers. Emissions from the ether/solvent packaging room are captured and exhausted to the atmosphere.

Bulk Material Receiving

024 Truck Unloading
Model/Make: Mallinckrodt Baker Designed
Construction Date: May 1, 1978
Control Method: Nitrogen Blanket
Capacity: 5,800 gal/hr

Bulk shipments are received at the facility via tank trucks, totes, or drums. Solvent, ether, acids, and other miscellaneous compounds are received via tank truck, totes, drums, or other containers. Materials

**Emission Unit 013 Solvent Packaging Room,
Emission Unit 017 Ether/Solvent Packaging Room,
Emission Unit 024 Truck Unloading**

received via tank truck are either transferred by nitrogen pressure or gravity fed from the tank trucks to pumps that then move the material to packaging areas, storage tanks (in the case of acids), or to one of three distillation systems. A nitrogen blanket is applied to all tank trucks to a pressure of 1 psi in order to control emissions from the tank trucks during unloading.

Applicable Regulations:
401 KAR 63:020, Potentially hazardous matter or toxic substances applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances as defined in Section 2 of 401 KAR 63:020, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division. This regulation applies to emission units 013, 017 and 024.

Precluded Regulations:
401 KAR 52:020, Title V Permits. The permittee has elected to accept operational restrictions and annual emission limits in order to preclude the applicability of 401 KAR 52:020, Title V Permits.

Comments:
To preclude 401 KAR 52:020 at emission unit 013:

Dichloromethane packaging in the solvent area shall not exceed 5,529,420 pounds per twelve (12) consecutive month period;

Packaging of total VOCs or total HAPs, other than dichloromethane, at the mobile side stations, 5-gallon pail filling station, or drum/tote stations shall not exceed 30,850,000 pounds per twelve (12) consecutive month period; and

Packaging of total VOCs or total HAPs, other than dichloromethane, on the two (2) autofill stations at emission unit 013 shall not exceed 22,212,000 pounds per twelve (12) consecutive month period.

To preclude 401 KAR 52:020 at emission unit 017:

Packaging of dichloromethane at the side stations and drum filling station shall not exceed 1,105,884 pounds per twelve (12) consecutive month period; and

Packaging of total VOCs or total HAPs, other than dichloromethane, at the mobile side stations and drum filling station shall not exceed 3,755,000 pounds per twelve (12) consecutive month period.

To be in compliance with 401 KAR 63:020, the permittee has taken a limit of 600,000 gallons of chloroform throughput at each of emission units 013 and 024.

There are no controls on emission units 013 or 017.

The rail car unloading (023) and HCl storage vessel (025) emission units were removed from the the permit per renewal application APE20230001.

Emission Unit 059 Fugitives - Distillation/Packaging Area (Insignificant activity)

Initial Construction Date: 059: 12/1990

Process Description:
Solvent and Ether Distillation

059	**Fugitives - Distillation/Packaging Area**
Description:	consists of equipment leak components in VOC service. Approximately 46 valves in gas/vapor service or in light liquid service Approximately 174 Flanges in gas/vapor service or in light liquid service Approximately 8 Seamless Pumps in light liquids service

Applicable Regulations:
401 KAR 63:020, Potentially hazardous matter or toxic substances applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances as defined in Section 2 of 401 KAR 63:020, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division. This regulation applies to emission unit 059 for chloroform. [State Only requirement]

Comments:
The facility identified in the renewal application that Emission units 055, 055, 056 Distillation Stills have fallen into disrepair and though present at the facility is not available for use. Emission unit 057 was never constructed and so requested that unit to be removed from the permit. In addition, the fugitive component count has been updated and is subject only to 401 KAR 63:020 and now identified in Section C of the permit.

Emission Unit #26 Parts Washer

Initial Construction Date: 4/2018

Process Description:
Model/Make: Safety-Kleen / Model 90
Capacity: 25 gallons
Max Solvent Usage: 440 gal/yr

Applicable Regulation:
401 KAR 59:185, New Solvent Metal Cleaning Equipment.

State-Origin Requirement:
401 KAR 63:020, Potentially hazardous matter or toxic substances.

Comments:
The permittee shall monitor solvent usage and the type of solvent used each time solvent is added to the unit.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

Testing Requirements\Results.

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
012	Packed-Bed Scrubber (Caustic Scrubber #1), Duall Acid Scrubber	HCl emissions	401 KAR 63:020	Initial and every 5 years	26A	--	0.0086 lb/hr	3,271 gal/hr	CMN20120002	3/8/2012
		HCl DRE					99.5%			
		HF emissions					0.0086 lb/hr	606 gal/hr		
		HF DRE					85.2%			
012	Packed-Bed Scrubber (Caustic Scrubber #1), Duall Acid Scrubber	HCl emissions	401 KAR 63:020	Every 5 years of last test approved	26/26A	--	0.00043 lb/hr	338.8 gal/hr	CMN20200001	1/20/2020
		HCl DRE					96.6248%			
		HF emissions					0.00147 lb/hr	86.66 gal/hr		
		HF DRE					98.06%			
012	Packed-Bed Scrubber (Caustic Scrubber #1), Duall Acid Scrubber	HCl emissions	401 KAR 63:020	Every 5 years of last test approved	26A	--	TBD	TBD	TBD	TBD
		HCl DRE					TBD			
		HF emissions					TBD	TBD		
		HF DRE					TBD			

Footnotes:

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
90 tpy of PM/PM_{10}/$PM_{2.5}$ emissions	To preclude 401 KAR 52:020, Title V Permits; and To preclude 401 KAR 51:017, PSD	Source-Wide
90 tpy of VOC emissions		
90 tpy of SO_2 emissions		
3.737 tpy of Phenol emissions	To preclude 401 KAR 52:020, Title V Permits;	
22.5 tpy of combined HAP emissions		
3.737 tpy of Phenol emissions	401 KAR 63:020	
0.768 tpy of Hydrochloric Acid emissions		
0.776 tpy chloroform emissions		

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:010, New Process Operations	007, 008, 009, 010, 011
401 KAR 59:015, New Indirect Heat Exchangers	001, 002, 003
401 KAR 63:020, Potentially hazardous matter or toxic substances	001, 002, 011, 012, 013, 017, 024, 059 (IA) and other IA
401 KAR 63.002 Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	FW01, EG01
401 KAR 63:002, Section 2(4)(jjjjj), 40 C.F.R. 63.11193 through 63.11237, Tables through 63. 8 (Subpart JJJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	003

Table C - Summary of Precluded Regulations:

Precluded Regulation	Emission Unit
401 KAR 51:017, Prevention of Significant Deterioration of Air Quality	Source-Wide
401 KAR 52:020, Title V Permits	

Table D - Summary of Non Applicable Regulations:

Non Applicable Regulation	Emission Unit
401 KAR 63:002, Section 2(4)(jjjjj), 40 C.F.R. 63.11193 through 63.11237, Tables through 63. 8 (Subpart JJJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources.	001, 002
401 KAR 60:005 Section 2(2)(d), 40 C.F.R. 60.40c through 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	001, 002, 003

Air Toxic Analysis

401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances*
The Division for Air Quality (Division) has performed AERMOD on February 25, 2025 of potentially hazardous matter or toxic substances (Hydrogen Chloride, Chloroform, Hexane, Methylene Chloride, Phenol, Acetonitrile and Xylenes) 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.

Single Source Determination
N/A

SECTION 5 - PERMITTING HISTORY

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
F-08-006	Initial	APE20080001	4/15/2008	9/15/2008	Initial Conditional Major Operating Permit	
F-08-006 R1	Minor Revision	APE20090001	5/29/2009	10/8/2009	Minor Revision	
F-08-006 R2	Admin Amend	APE20100002	11/15/2011	12/2/2011	Name and Address Change	
F-08-006 R3	Minor Revision	APE20120002	3/30/2012	5/16/2012	Emergency generators/fuel curtailment for boilers to preclude MACT	
F-13-019	Renewal	APE20130001	4/9/2013	12/30/2013	Renewal of Conditional Major Operating Permit	
F-13-019 R1	Admin Amend	APE20140001	1/27/2014	3/20/2014	Public comments added to permit. Boiler #3 reinserted into permit.	
F-13-019 R2	Admin Amend	APE20150001	5/27/2015	6/10/2015	Stack height extensions and cover page dates corrected.	
F-18-038	Renewal	APE20180001	8/28/2018	1/13/2019	Renewal Permit	

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