

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

Conditional Major, Construction/Operating  
Permit: F-26-004

Shamrock Technologies, Inc  
301 Community Drive.  
Henderson, KY 42420

February 5, 2026  
Dylan Buckingham, Reviewer

SOURCE ID: 21-101-00136  
AGENCY INTEREST: 46709  
ACTIVITY: APE20210001, APE20250001

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## SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 2899, Chemicals and Chemical Preparations NEC

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:

County: Henderson

Nonattainment Area  N/A  PM<sub>10</sub>  PM<sub>2.5</sub>  CO  NO<sub>x</sub>  SO<sub>2</sub>  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<sub>10</sub>  PM<sub>2.5</sub>  CO  NO<sub>x</sub>  SO<sub>2</sub>  VOC

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

If yes, for what pollutant(s)?

PM<sub>10</sub>  PM<sub>2.5</sub>  CO  NO<sub>x</sub>  SO<sub>2</sub>  VOC

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

If yes, list which pollutant(s): Hydrogen Fluoride (HF)

PTE\* greater than 25 tpy for combined HAP  Yes  No

\*PTE does not include self-imposed emission limitations.

### Description of Facility:

Shamrock recycles polytetrafluoroethylene (PTFE) by irradiating the ground material and baking irradiated material to process into fresh micro powders for different applications within inks and coatings, etc.

## SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-26-004

Activity:	Application Received:	Application Complete Date(s):
APE20210001	January 11, 2021,	January 5, 2026
APE20250001	October 30, 2025	January 5, 2026

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:

- On January 11, 2021 Shamrock Technologies, Inc. (Shamrock) applied for renewal (APE20210001) of the permit for their Community Drive facility in Henderson Kentucky. Following conversations with the Cabinet, on November 22, 2021 Shamrock submitted a revised renewal application replacing the January 4, 2021 application in entirety.
  - With the renewal Shamrock requested the removal of EU07 Two Heated Processing Units (C11) and two insignificant activity grinder/mill product collectors (E2 & C5).
  - The Division has updated emission factors and control efficiencies based on the most recently available test data as part of this renewal. Updated testing will establish new emission factors for calculating PTE and determining compliance with source-wide limits.
- On April 22, 2022 Shamrock submitted a 502(b)(10) notification, which was revised on June 22, 2022 notifying the Division of replacement of insignificant activity mills 2, 8, & 10. This change removed the need for the mill vent on mill 2 (previously D5).
- On October 30, 2025 Shamrock submitted a minor revision application (APE20250001) seeking to increase capacity of the existing tray ovens (D9, D11-D13) from 50 lb/hr to 225 lb/hr and to add three new tray ovens. On December 5, 2025 Shamrock submitted an updated application, replacing the previously received application and revising the project to increase capacity of the existing tray ovens (D9, D11-D13) from 50 lb/hr to 225 lb/hr and to add one new tray oven (D14).
- On February 25, 2026 Shamrock submitted an addendum to the minor revision application (APE20250001) requesting to incorporate an existing solids blender (E1) and 3 natural gas fired ceiling heaters (insignificant activities) into the permit. Compliance with 401 KAR 53:010 did not need to be re-evaluated as these units do not emit HF.

F-26-004 Emission Summary				
Pollutant	2024 Actual (tpy)	PTE F-16-012 R1 (tpy)	Change <sup>[1]</sup>	PTE F-26-004 (tpy)
CO	0.81	3.84	0.14	3.98
NOx	-	-	-	-
PT	0.33	1.31	7.91	9.22
PM <sub>10</sub>	0.33	1.31	7.91	9.22
PM <sub>2.5</sub>	0.33	1.31	7.91	9.22
SO <sub>2</sub>	-	-	-	-
VOC	13.95	72.42	16.19	88.61
Greenhouse Gases (GHGs)				
Carbon Dioxide	11.32	23.2	750	773.2
Methane	0.03	0.05	1.34	1.39
Nitrous Oxide	0.00	0.01	1.17	1.18
CO <sub>2</sub> Equivalent (CO <sub>2</sub> e)	12.16	27.3	1,097.5	1,124.8
Hazardous Air Pollutants (HAPs)				
Formaldehyde	0.05	0.19	-0.12	0.07
Hydrogen Chloride	0.02	0.10	0.00	0.10
Hydrogen Fluoride <sup>[2]</sup>	4.09/0.56	16.73/4.87	20.95/-1.23	37.68/3.64
Combined HAPs <sup>[2]</sup>	4.16/0.63	17.02/7.83	23.52/-1.34	40.54/6.49
<sup>[1]</sup>	Change in emissions is the result of updated emission factors via testing and removal/addition of equipment			
<sup>[2]</sup>	Includes federally enforceable requirements to operate HF controls (Uncontrolled/Controlled)			

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

<b>Emission Unit #B3 ICT E-Beam Product Collectors</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
PM	When $P \leq 0.5$ tons/hr $E = 2.34$ lb/hr Where: $E = PM$ in lb/hr; $P =$ process rate in tons/hr	401 KAR 59:010, Section 3(2)	Material Balance/ Outlet Grain Loading (0.171 lb/hr)	Assumed based on information submitted by the source.
	20% Opacity	401 KAR 59:010, Section 3(2)	N/A	Monthly Qualitative Visual observation

**Initial Construction Date:** 1/1/1998

**Process Description:**

Three Baghouse Collectors

- (1) Particulate emissions due to baghouse exhaust flow and outlet grain loading.
- (2) VOC emissions due to processing PTFE with residual oils; and
- (3) Emissions due to irradiation.

Production Rate: 400 lb/hr (80 kwh max operating rate)

Control Device: Scrubber 3 (Installed 2/1/2016)

Stack ID: B8

Control Efficiency: 89.1% (for HF emissions)

**Applicable Regulation:**

**401 KAR 59:010, *New Process Operations.*** This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

**401 KAR 53:010, *Ambient Air Quality Standards*** (applies to HF emissions).

**State-Origin Requirements:**

**401 KAR 63:020, *Potentially hazardous matter or toxic substances*** (does not apply to HF emissions). This regulation is applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. As HF emissions are subject to 401 KAR 63:020, emissions of HF are not subject to 401 KAR 63:020.

**Comments:**

PM (PT=PM<sub>10</sub>=PM<sub>2.5</sub>) emission factors (Process ID 1) are based on engineering estimates assuming a worst case stack gas flow rate of 8,000 acfm and outlet grain loading of 0.0025 gr/acfm.

VOC emission factors (Process ID 2) are based on a shavings cutting oil content of 0.7%wt. and all assumed to be emitted.

CO, HAP (formaldehyde, HCl, CCl<sub>4</sub>), VOC, and GHG emission factors (Process ID 3) are based on April 2009 stack testing (as provided in APE20100001).

**Emission Unit #B3 ICT E-Beam Product Collectors**

HF emission factors and control efficiency (Process ID 3) are based on December 2017 stack testing (CMN20170002). The 2017 stack test resulted in an HF control efficiency slightly lower than previously assumed for the unit (89.1% vs 90%). Control efficiency of the unit has been updated to 89.1% as requested in the APE2022001 renewal.

Future testing will establish an updated HF emission factor/ control efficiency to be used in calculating actual emissions.

**Emission Unit #B7 E-Beam 3 Product Collectors**

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	When $P \leq 0.5$ tons/hr $E = 2.34$ lb/hr Where: $E = PM$ in lb/hr; $P =$ process rate in tons/hr	401 KAR 59:010, Section 3(2)	Material Balance/ Outlet Grain Loading (0.135 lb/hr)	Assumed based on information submitted by the source.
	20% Opacity	401 KAR 59:010, Section 3(2)	N/A	Monthly Qualitative Visual observation

**Initial Construction Date:** 6/1/2011

**Process Description:**

Four Product Collectors

- (1) Particulate emissions due to baghouse exhaust flow and outlet grain loading;
- (2) VOC emissions due to processing PTFE with residual oils; and
- (3) Emissions due to irradiation.

Production Rate: 560 lb/hr (128 kwh max operating rate)

Control Device: Scrubber 2

Stack ID: B7

Control Efficiency: 92.5% Control of HF Emissions

**Applicable Regulation:**

**401 KAR 59:010, *New Process Operations*.** This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

**401 KAR 53:010, *Ambient Air Quality Standards*** (applies to HF emissions).

**State-Origin Requirements:**

**401 KAR 63:020, *Potentially hazardous matter or toxic substances*** (does not apply to HF emissions). This regulation is applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. As HF emissions are subject to 401 KAR 63:020, emissions of HF are not subject to 401 KAR 63:020.

**Comments:**

PM (PT=PM<sub>10</sub>=PM<sub>2.5</sub>) emission factors (Process ID 1) are based on engineering estimates assuming a

**Emission Unit #B7 E-Beam 3 Product Collectors**

worst case stack gas flow rate of 6,000 acfm and outlet grain loading of 0.0025 gr/acfm.

VOC emission factors (Process ID 2) are based on a shavings cutting oil content of 0.7%wt. and all assumed to be emitted.

CO, HAP (formaldehyde, HCl, CCl<sub>4</sub>), VOC, and GHG emission factors (Process ID 3) are based on April 2009 stack testing (as provided in APE20100001).

HF emission factors and control efficiency (Process ID 3) are based on December 2017 stack testing (CMN20170002). The 2017 stack test resulted in an HF control efficiency higher than previously assumed for the unit (92.5% vs 90%). Control efficiency of the unit has been updated to 92.5% as requested in the APE2022001 renewal.

Future testing will establish an updated HF emission factor/ control efficiency to be used in calculating actual emissions.

**Emission Unit #D6 Dynamitron E-Beam N Vault**

**Initial Construction Date:** 1/1/1999

**Process Description:**

Batch Process

- (1) VOC emissions due to processing PTFE with residual oils and
- (2) Emissions due to irradiation.

Production Rate: 500 lb/hr (120 kwh max operating rate)

Control Device: None

Stack ID: D6

**Applicable Regulation:**

**401 KAR 53:010**, *Ambient Air Quality Standards* (applies to HF emissions).

**State-Origin Requirements:**

**401 KAR 63:020**, *Potentially hazardous matter or toxic substances* (does not apply to HF emissions).

This regulation is applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. As HF emissions are subject to 401 KAR 63:020, emissions of HF are not subject to 401 KAR 63:020.

**Comments:**

VOC emission factors (Process ID 1) are based on a shavings cutting oil content of 10%wt. and all assumed to be emitted (25% from North Vault (D6) 75% from South Vault (D7)).

CO, HAP (formaldehyde, HCl, HF CCl<sub>4</sub>), and GHG emission factors (Process ID 2) are based on April 2009 stack testing (as provided in APE20100001).

Future testing will establish an updated HF emission factor.

**Emission Unit #D7 Dynamitron E-Beam S Vault**

**Initial Construction Date:** 1/1/1999

**Process Description:**

Batch Process

- (1) VOC emissions due to processing PTFE with residual oils and
- (2) Emissions due to irradiation.

Production Rate: 500 lb/hr (120 kwh max operating rate)

Control Device: None

Stack ID: D7

**Applicable Regulation:**

**401 KAR 53:010**, *Ambient Air Quality Standards* (applies to HF emissions).

**State-Origin Requirements:**

**401 KAR 63:020**, *Potentially hazardous matter or toxic substances* (does not apply to HF emissions). This regulation is applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. As HF emissions are subject to 401 KAR 63:020, emissions of HF are not subject to 401 KAR 63:020.

**Comments:**

VOC emission factors (Process ID 1) are based on a shavings cutting oil content of 10%wt. and all assumed to be emitted (25% from North Vault (D6) 75% from South Vault (D7))

CO, HAP (formaldehyde, HCl, HF, CCl<sub>4</sub>), and GHG emission factors (Process ID 2) are based on April 2009 stack testing (as provided in APE20100001).

Future testing will establish an updated HF emission factor.

**Emission Units #D9, D11-D14 Tray Ovens 1-5**

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	When $P \leq 0.5$ tons/hr $E = 2.34$ lb/hr Where: E = PM in lb/hr; P = process rate in tons/hr	401 KAR 59:010, Section 3(2)	2019 Stack Testing (3.12 lb/ton)	Assumed based on information submitted by the source.
	20% Opacity	401 KAR 59:010, Section 3(2)	N/A	Monthly Qualitative Visual observation

**Initial Construction Date:**

D9 Tray Oven 1 – 1/1/2007

D11 Tray Oven 2 – 2/1/2016

D12 & D13 Tray Ovens 3 & 4 – 3/15/2018

D14 Tray Oven 5 - 12/15/2025

**Emission Units #D9, D11-D14 Tray Ovens 1-5**

**Process Description:**

Production Rate: 225 lb/hr (high dose batch average) [Each Tray Oven]  
Control Device: Scrubber 1  
Stack ID: B3  
Control Efficiency: 95% Control of HF Emissions

**Applicable Regulation:**

**401 KAR 59:010, *New Process Operations*.** This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

**401 KAR 53:010, *Ambient Air Quality Standards*** (applies to HF emissions).

**State-Origin Requirements:**

**401 KAR 63:020, *Potentially hazardous matter or toxic substances*** (does not apply to HF emissions). This regulation is applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. As HF emissions are subject to 401 KAR 63:020, emissions of HF are not subject to 401 KAR 63:020.

**Comments:**

Processing PTFE through the tray ovens is a batch process with a minimum cycle time of 16 hours (conservatively 12 hours was used for HF modeling when demonstrating compliance with 401 KAR 53:010) and maximum PTFE capacity of 5,400 lb/batch.

PM (PT=PM<sub>10</sub>=PM<sub>2.5</sub>) emission factors are based on testing conducted on 3/27/2019

CO, HAP (HCl & CCl<sub>4</sub>), and GHG emission factors (Process ID 2) are based on April 2009 stack testing(as provided in APE20100001) (formaldehyde not detected).

HF emission factors and control efficiency were updated as part of the APE20250001 minor revision application. Based on the March 27, 2025 engineering stack test conducted by Shamrock, the average HF control efficiency was 98.8%, for permitting purposes a scrubber HF control efficiency of 95% was used for conservancy. Additionally, the March 27, 2025 test yielded an uncontrolled average HF emission rate of 2.66 lb/hr. As the maximum rate of emissions only occurs during a portion of the batch process, a representative “equivalent hours of emissions” was calculated using an emission measurement profile established during testing in 2009 (as provided in APE20250001). This analysis showed that at a rate of 2.66 lb/hr, all HF emissions would be released in 3.79 hrs. Shamrock assumed 4 hours of emissions for conservancy. This yields a lb/lb PTFE emission factor as follows:

$$\frac{2.66 \text{ lb } \frac{\text{HF}}{\text{hr}} \text{ (average from 3 test runs)} * 4 \text{ hr of emissions/batch}}{5400 \text{ lb PTFE/batch}} = 1.97 \times 10^{-3} \frac{\text{lb HF}}{\text{lb PTFE}}$$

Future testing will confirm the emission measurement profile and establish an updated HF emission factor/control efficiency.

Emission Unit #E1, Blender				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	When $P \leq 0.5$ tons/hr $E = 2.34$ lb/hr Where: E = PM in lb/hr; P = process rate in tons/hr	401 KAR 59:010, Section 3(2)	AP-42 11.26.1/ Engineering Estimate (11.6 lb/ton uncontrolled)	Assumed based on information submitted by the source.
	20% Opacity	401 KAR 59:010, Section 3(2)	N/A	Monthly Qualitative Visual observation
<b>Initial Construction Date:</b> 9/04/2024  <b>Process Description:</b> Solids Blending Production Rate: 1,200 lb/hr) Control Device: Fabric Filter Stack ID: F1 Control Efficiency: 99.5% Control of PM Emissions  <b>Applicable Regulation:</b> 401 KAR 59:010, <i>New Process Operations</i> . This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.  <b>Comments:</b> Emission factors from AP-42 11.26.1 Crushed talc storage bin loading, with fabric filter (0.0036 lb/1,000 lb) and grinding, with fabric filter (0.022 lb/ton). As the blender is a three step process (material hopper, blending, discharge). The factors have been added together (0.0036 +0.022+0.0036), converted to lb/ton ( and back calculated, assuming 99.5% control, to derive an uncontrolled factor (11,6 lb/ton). Talc handling was selected as the material processed by the blender is closer in size to talc, although not as fine, resulting in a conservative emissions estimate.				

Insignificant Activity #B1 ICT Vault Exhaust				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	When $P \leq 0.5$ tons/hr $E = 2.34$ lb/hr Where: E = PM in lb/hr; P = process rate in tons/hr	401 KAR 59:010, Section 3(2)	2019 Stack test (4.46E-5 lb/kwh)	Assumed based on information submitted by the source.
	20% Opacity	401 KAR 59:010, Section 3(2)	N/A	Monthly Qualitative Visual observation
<b>Process Description:</b> ICT PTFE Irradiation				

**Insignificant Activity #B1 ICT Vault Exhaust**

Irradiation Rate: (80 kwh max operating rate)  
 Control Device: None  
 Stack ID: B1

**Applicable Regulation:**

**401 KAR 59:010, *New Process Operations*.** This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

**401 KAR 53:010, *Ambient Air Quality Standards*** (applies to HF emissions).

**Comments:**

Unit B1 (stack ID B1) was previously assumed exhaust ambient air only. Stack testing in 2019 confirmed that HF and PM are emitted from this location. The unit still qualifies as an insignificant activity.

**Insignificant Activity #B5 E-Beam 3 Vault Exhaust**

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	When $P \leq 0.5$ tons/hr $E = 2.34$ lb/hr Where: E = PM in lb/hr; P = process rate in tons/hr	401 KAR 59:010, Section 3(2)	2019 Stack test (4.46E-5 lb/kwh)	Assumed based on information submitted by the source.
	20% Opacity	401 KAR 59:010, Section 3(2)	N/A	Monthly Qualitative Visual observation

**Process Description:**

E-Beam 3 PTFE Irradiation  
 Irradiation Rate: (128 kwh max operating rate)  
 Control Device: None  
 Stack ID: B5

**Applicable Regulation:**

**401 KAR 59:010, *New Process Operations*.** This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

**401 KAR 53:010, *Ambient Air Quality Standards*** (applies to HF emissions).

**Comments:**

Unit B5 (stack ID B5) was previously assumed exhaust ambient air only. Stack testing in 2019 confirmed that HF and PM are emitted from this location. The unit still qualifies as an insignificant activity.

<b>Insignificant Activity #D2 Three Dynamitron Product Collectors</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
PM	When $P \leq 0.5$ tons/hr $E = 2.34$ lb/hr Where: E = PM in lb/hr; P = process rate in tons/hr	401 KAR 59:010, Section 3(2)	Material Balance/ Outlet Grain Loading (9.69E-4 lb/hr)	Assumed based on information submitted by the source.
	20% Opacity	401 KAR 59:010, Section 3(2)	N/A	Monthly Qualitative Visual observation

**Process Description:**

Dynamitron Product Collector Baghouses

- (1) Particulate emissions due to baghouse exhaust flow and outlet grain loading.
- (2) Cobalt emissions due to pigments
- (3) Emissions due to irradiation.

Production Rate: 400 lb/hr (120 kwh max operating rate)

Control Device: None

Stack ID: D2

**Applicable Regulation:**

**401 KAR 59:010, *New Process Operations*.** This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

**401 KAR 53:010, *Ambient Air Quality Standards*** (applies to HF emissions).

**State-Origin Requirements:**

**401 KAR 63:020, *Potentially hazardous matter or toxic substances*** (does not apply to HF emissions). This regulation is applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. As HF emissions are subject to 401 KAR 63:020, emissions of HF are not subject to 401 KAR 63:020.

**Comments:**

N/A

**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
D9, D11-14	Scrubber 1	HF, HF Control Efficiency	401 KAR 50:045, Section 1	Initial and every 5 years	26A	0.148 lb/hr (401 KAR 53:010); 9.0 tpy source-wide	TBD	Emission Factor, Control Efficiency, Scrubber Parameters	TBD	
D9, D11-14	Scrubber 1	HF Emissions Profile Over Entire Batch	401 KAR 50:045, Section 1	Initial			TBD			
B3	Scrubber3	HF, HF Control Efficiency	401 KAR 50:045, Section 1	Initial and every 5 years	26A	0.2244 lb/hr (401 KAR 53:010); 9.0 tpy source-wide	TBD			
B7	Scrubber 2	HF, HF Control Efficiency	401 KAR 50:045, Section 1	Initial and every 5 years	26A	0.3131 lb/hr (401 KAR 53:010); 9.0 tpy source-wide	TBD			
D6	None	HF	401 KAR 50:045, Section 1	Initial and every 5 years	26A	0.06555 lb/hr [D6] (401 KAR 53:010); 9.0 tpy source-	TBD			

						wide				
D7	None	HF	401 KAR 50:045, Section 1	Initial and every 5 years	26A	0.08040 lb/hr (401 KAR 53:010); 9.0 tpy source-wide	TBD	Emission Factor		
B7	Scrubber 2	HF, HF Control Efficiency %	401 KAR 50:045, Section 1	Initial	26A	N/A	0.232 lb/hr, 86.08 %	Emission Factor, Control Efficiency	CMN201700 01 <sup>[1]</sup>	3/28-30/2017
D9, D11, E1	Scrubber 1						0.0826 lb/hr, 88.60 %			
B3	Scrubber 3	HF, HF Control Efficiency %	401 KAR 50:045, Section 1	Initial	26A	N/A	0.343 lb/hr, 63.59 % control	Emission Factor, Control Efficiency	CMN201700 01 <sup>[1]</sup>	3/28-30/2017
B3	Scrubber 3	HF Control Efficiency %	401 KAR 50:045, Section 1	Initial	26A	N/A	89.1%	Emission Factor, Control Efficiency	CMN201700 02	12/12-15/2017
B7	Scrubber 2						92.5%			
D9, D11, E1	Scrubber 1						92.9%			

**Footnotes:**

<sup>[1]</sup> During initial testing under CMN2017001, the facility noted that the scrubbers did not perform as expected and other aspects of system operations were inconsistent with design expectations. A retest under CMN20170002 was performed replacing the results of CMN2017001.

**SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS**

**Table A - Group Requirements:**

<b>Emission and Operating Limit</b>	<b>Regulation</b>	<b>Emission Unit</b>
9.0 tpy of individual HAP (Hydrogen Fluoride) emissions	To preclude major source status for HAP	Source-wide

**Table B - Summary of Applicable Regulations:**

<b>Applicable Regulations</b>	<b>Emission Unit</b>
<b>401 KAR 53:010</b> , <i>Ambient Air Quality Standards</i> (applies to HF emissions)	B3, B7, D6, D7, D9, D11-14, B1, B5, D2
<b>401 KAR 59:010</b> , <i>New Process Operations</i>	B3, B7, D9, D11-14, B1, B5, D2, E1
<b>401 KAR 63:020</b> , <i>Potentially hazardous matter or toxic substances</i> (does not apply to HF emissions)	B3, B7, D6, D7, D9, D11-14, D2

**Table C - Summary of Precluded Regulations:**

N/A

**Table D - Summary of Non Applicable Regulations:**

N/A

**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 December 15, 2025 of potentially hazardous matter or toxic substances (Formaldehyde, Hydrogen Chloride, Cobalt) 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.

**401 KAR 53:010**, *Ambient Air Quality Standards(AAQs)*

The Division for Air Quality (Division) has performed modeling using AERMOD on December 15, 2025 of potentially hazardous matter or toxic substances (Hydrogen Fluoride) 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, including all control requirements, will assure compliance with the primary and secondary standards for gaseous fluorides (expressed as HF) in Appendix A of 401 KAR 53:010.

- a. If results from a performance test show that the HF emission factor from any of the emission units listed in Table 1 below exceeds the emission rate shown, the permittee shall submit updated modeling for HF, or other analysis to demonstrate compliance with the primary and secondary standards for gaseous fluorides (expressed as HF) in Appendix A of 401 KAR 53:010.

<b>Table 1</b>	
<b>Emission Unit (Stack ID)</b>	<b>HF Emission Rate (lb/hr)</b>
D9, D11-D14 (B3)	0.14800 <sup>[1]</sup>
D2 (D2) <sup>[2]</sup>	0.00209
D6 (D6)	0.06555
D7 (D7)	0.08040
B7 (B7)	0.31310 <sup>[1]</sup>
B3 (B8)	0.22440 <sup>[1]</sup>
B5 (B5) <sup>[2]</sup>	0.00382
B1 (B1) <sup>[2]</sup>	0.00423

<sup>[1]</sup> Controlled Emission Rate

<sup>[2]</sup> Insignificant Activity

**Single Source Determination**

N/A

**SECTION 5 – PERMITTING HISTORY**

Permit	Permit Type	Activity #	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
S-10-076	Initial	APE20100001	7/1/2010	7/8/2010	Initial Operating Permit	
S-10-076 R1	Minor Revision	APE20100002	1/18/2011	2/2/2011	Equipment added as Insignificant Activities	
F-11-036	Initial	APE20110001	5/19/2011	7/22/2011	Construction (New EBeam)	
F-11-036 R1	Revision	APE20130001	6/26/2013	9/10/2013	Addition of Two Heated Processing Units (HPU-1 and HPU-2)	
F-16-012	Renewal	APE20150001 APE20160001	1/26/2016	7/8/2016	Addition of Tray Oven 2 (D11) and new scrubber	
F-16-012 R1	Minor Revision	APE20180001	3/6/2018	5/3/2018	Addition of Tray Oven 3 (D12) and Tray Oven 4 (D13); Removal of Blender Oven 1 (E1)	

**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
CCl <sub>4</sub>	– Carbon Tetrachloride
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
ESP	– Electrostatic Precipitator
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
HCl	– Hydrogen Chloride
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 <sub>x</sub>	– Nitrogen Oxides
NSR	– New Source Review
PM	– Particulate Matter
PM <sub>10</sub>	– Particulate Matter equal to or smaller than 10 micrometers
PM <sub>2.5</sub>	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
PTFE	– Polytetrafluoroethylene
SO <sub>2</sub>	– Sulfur Dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds