

Commonwealth of Kentucky
Division for Air Quality
STATEMENT OF BASIS

Conditional Major, Operating
Permit: F-24-048
Givaudan Flavors Corporation
Florence, KY 41042
February 28, 2024
Sriram Balaji, Reviewer

SOURCE ID: 21-015-00150
AGENCY INTEREST: 4590
ACTIVITY: APE20230002, APE20240001

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SECTION 1 – SOURCE DESCRIPTION

SIC Code: 2087 – Flavoring Extracts and Flavoring Syrups

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: Boone

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

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):

PTE* greater than 25 tpy for combined HAP Yes No

*PTE does not include self-imposed emission limitations.

Description of Facility:

Givaudan Flavors Corporation (Givaudan) manufactures meat and other type flavors for the food industry in Florence, Kentucky. The Devon facility processes a variety of meat and cheese flavors. The facility manufactures savory and cheese flavorings using a number of steps including cooking, enzymatic processing, reaction, concentration, drying and packaging. Raw materials include meats, cheese, water, spices and liquid hydrolyzed plant protein (HPP).

SECTION 2 – CURRENT APPLICATION

Permit Number: F-24-028

Activities: APE20230002, APE20240001

Received: September 28, 2023, May 28, 2024

Application Complete Date(s): February 28, 2024, September 23, 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:

- APE20230002: Renewal
 - Renewal permit
 - Updating insignificant activity, “Quick Water Heater” max heat capacity
 - Removing PM 2.5 from all blending/mixing processes based on particle analysis.
- APE20240001: Minor Permit Revision
 - Addition of two new trial reactors under P014
 - Renaming reactors and tanks under P014

F-24-048 Emission Summary				
Pollutant	2022 Actual (tpy)	PTE F-18-047 R1 (tpy)*	PTE F-24-048 (tpy)*	PTE APE20240001 (tpy)*
CO	3.88	20.05	21.11	21.11
NOx	4.62	24.62	25.89	25.89
PT	6.31	37.08	45.02	45.06
PM ₁₀	6.31	36.84	44.23	44.26
PM _{2.5}	3.27	17.78	1.11	1.11
SO ₂	0.03	0.11	0.15	0.15
VOC	7.72	15.53	30.33	30.33
Lead	0.00002	0.0001	0.0001	0.0001
Greenhouse Gases (GHGs)				
Carbon Dioxide	3785.4	22720.9	24241.1	24241.1
Methane	0.11	0.80	0.83	0.83
Nitrous Oxide	0.10	0.52	0.55	0.55
CO ₂ Equivalent (CO ₂ e)	3818.4	22896.9	24426.2	24426.2
Hazardous Air Pollutants (HAPs)				
Hydrogen Sulfide	0.055	0.12	0.12	0.12
Combined HAPs:	0.057	0.55	0.55	0.55

*Represents controlled emissions

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit 01(P01) Filtermat				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	14.6 lb/ton, bag manufacturer's specifications	Dust Collector
	< 20% opacity	401 KAR 59:010, Section 3(1)(a), 401 KAR 59:015, Section 4(2)	NA	Daily visible emissions; EPA Method 9 test
PM	0.43 lb/mmBtu (433.54 lb/mmscf)	401 KAR 59:015 Section 4(1)	7.6 lb/mmscf, AP-42 Chapter 1.4	Assumed by burning natural gas
SO ₂	1.86 lb/mmBtu (1892.34 lb/mmscf)	401 KAR 59:015 Section 5(1)	0.6 lb/mmscf, AP-42 Chapter 1.4	Assumed by burning natural gas

1 For PM 59:010 limit from 59:010 Section 3(2), E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs/hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr

Initial Construction Date: 8/2006

Process Description:
 The Filtermat spray dryer will dry most sticky, hygroscopic, thermoplastic and slowly crystallizing products into free flowing powders. The Filtermat spray dryer combines a co-current nozzle tower dryer with a built-in conveyor belt. The residence time for the powder as it travels through different zones is several minutes, offering sufficient time to complete drying while maintaining the required powder temperatures.

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 59:015, New Indirect Heat Exchangers. This regulation is applicable to indirect heat exchangers having a heat input capacity greater than one (1) mmBtu/hr commenced on or after April 9, 1972.

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

Comments:
 Maximum operating rate: 0.6 tons material output/hr calculated as an average over 30 days of operation on a rolling basis 5,256 tons material output/yr
 7.04 mmBtu/hr natural gas consumption

Control Equipment: Regenerative Thermal Oxidizer (RTO) and Hinsilblon Odor Control System (HLDA300) for Odor only and Scrubber/ Demister for PM₁₀; exhaust through Stack S01

Emission Unit 01(P01) Filtermat

Filtermat emission factors based on material balance. Natural gas combustion emission factors based on AP-42 Chapter 1.4. PM 2.5 removed during APE20230002 per facility provided particle size analysis. The particle analysis stated that the minimum particle size of the ingredients used are 15 microns. PM 10 was kept as a conservative estimate. The Hinsilblon unit was added to mitigate odor during maintenance to the RTO in 2019 (CRE20190002) and was subsequently kept due to good performance and an initiative to reduce natural gas usage. The Hinsilblon unit operates by introducing a plant based odor neutralizing agent to the exhaust stream. Requirement to operate the RTO or Hinsilblon odor control system at all times the emission unit is operating was added during APE20230002 to help the facility address the standards related to 401 KAR 53:010 for odor due to receiving odor complaints.

Emission Unit 07(P07) Spray Dryer #1				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	50 lb/ton, bag manufacturer's specifications	Wet Scrubber/Demister
	< 20% opacity	401 KAR 59:010, Section 3(1)(a), 401 KAR 59:015, Section 4(2)	NA	Daily visible emissions; EPA Method 9 test
PM	0.40 lb/mmBtu (404.79 lb/mmscf)	401 KAR 59:015 Section 4(1)	7.6 lb/mmscf, AP-42 Chapter 1.4	Assumed by burning natural gas
SO ₂	1.65 lb/mmBtu (1679.06 lb/mmscf)	401 KAR 59:015 Section 5(1)	0.6 lb/mmscf, AP-42 Chapter 1.4	Assumed by burning natural gas

¹ For PM 59:010 limit from 59:010 Section 3(2), E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs/hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr

Initial Construction Date: 11/2008

Process Description:

The spray dryer will dry moist, sticky, hygroscopic, thermoplastic, and slowly crystallizing products into free flowing powders.

Applicable Regulation:

401 KAR 59:010, 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 59:015, New Indirect Heat Exchangers, applicable to indirect heat exchangers having a heat input capacity greater than one (1) MMBtu/hr commenced on or after April 9, 1972.

State Origin Requirements:

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

Comments:

Maximum operating rate: 1.75 tons material output/hr calculated as an average over 30 days of operation on a rolling basis
 6.7 mmBtu/hr natural gas consumption

Control Equipment: Regenerative Thermal Oxidizer (RTO) and Hinsilblon Odor Control System (HLDA100) for odor only and Scrubber/Demister for PM₁₀; exhaust through Stack S01

Filtermat emission factors based on material balance. Natural gas combustion emission factors based on AP-42 Chapter 1.4. PM 2.5 removed during APE20230002 per facility provided particle size analysis. The particle analysis stated that the minimum particle size of the ingredients used are 15 microns. PM 10 was kept as a conservative estimate. The Hinsilblon unit was added to mitigate odor during maintenance to the RTO in 2019 (CRE20190002) and was subsequently kept due to good performance and an initiative to reduce natural gas usage. The Hinsilblon unit operates by introducing a plant based odor neutralizing agent

Emission Unit 07(P07) Spray Dryer #1

to the exhaust stream. Requirement to operate the RTO or Hinsilblon odor control system at all times the emission unit is operating was added during APE20230002 to help the facility address the standards related to 401 KAR 53:010 for odor due to receiving odor complaints.

Emission Unit 002(P002) Four (4) Boilers

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM (Boilers 1-3)	0.45 lb/mmBtu (459.45 lb/mmscf)	401 KAR 59:015 Section 4(1)	7.6 lb/mmscf, AP-42 Chapter 1.4-2	Assumed based on combustion of natural gas.
PM (Boiler 4)	0.41 lb/mmBtu (421.21 lb/mmscf)	401 KAR 59:015 Section 4(1)	7.6 lb/mmscf, AP-42 Chapter 1.4-2	Assumed based on combustion of natural gas.
SO ₂ (Boilers 1-3)	2.05 lb/mmBtu (2093.78 lb/mmscf)	401 KAR 59:015 Section 5(1)	0.6 lb/mmscf, AP-42 Chapter 1.4-2	Assumed based on combustion of natural gas.
SO ₂ (Boiler 4)	1.76 lb/mmBtu (1799.55 lb/mmscf)	401 KAR 59:015 Section 5(1)	0.6 lb/mmscf, AP-42 Chapter 1.4-2	Assumed based on combustion of natural gas.
Opacity (Boilers 1-4)	< 20% opacity	401 KAR 59:015 Section 4(2)	NA	Assumed based on combustion of natural gas.

Initial Construction Date:

Boilers 1, 2, & 3: 1/2001
 Boiler 4: 9/2006

Process Description:

Each of the four boilers provides process heat to various locations at the facility.

Applicable Regulation:

401 KAR 59:015, New Indirect Heat Exchangers, applicable to indirect heat exchangers having a heat input capacity greater than one (1) MMBtu/hr commenced on or after April 9, 1972 (401 KAR 59:015, Section 2(1)).

State Origin Requirements:

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

Comments:

Boilers 1, 2, & 3: 8.4 mmBtu/hr (0.0082 mmscf/hr) each
 Boiler 4: 4.2 mmBtu/hr (0.0041 mmscf/hr)

Emission factors from AP-42 Chapter 1.4.

Previously included as insignificant activities.

Emission Unit 002(P002) Four (4) Boilers

40 CFR 63, Subpart JJJJJ, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, is not applicable to these boilers because they are gas-fired, pursuant to 40 CFR 63.11195(e).

Emission Unit 03 (P03) Three (3) Mixer/Blenders 1, 2, & 3 (2nd, 2nd and 3rd Floor): Batch Process

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	1.2 lb/ton, Material Balance	Rotoclones
	< 20% opacity	401 KAR 59:010, Section 3(1)(a)	NA	Daily visible emissions; EPA Method 9 test

1 For PM 59:010 limit from 59:010 Section 3(2), E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs /hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr

Initial Construction Date: 8/2006

Process Description:

Bulk ingredients are pneumatically conveyed from the silos to the selected scale hopper. Product and air is separated by a cyclone and conveying air will be vented to the central dust collection system. Each bulk scale is equipped with an explosion vent and vent duct penetrating the building that can be cleaned and inspected during the cleaning process. During bulk ingredient scaling, the operator will position and prepare to dump minors and micro ingredients with the drum dumper and/or bag dumping station. As soon as the mixer charge permissive is established, the bulk scale discharge cycle will start. At this time the operator will commence loading of the mixer with ingredient drums and bags (the system will allow the operator to dump drums and bags simultaneously through drum dumping and bag dumping stations). Subsequently, any flavor oils will be introduced into the pressurized pot, or fats introduced by drum.

Applicable Regulation:

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

State Origin Requirements:

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

Comments:

Maximum operating rate: 4.5 tons material output/hr calculated as an average over 30 days of operation on a rolling basis; 21,263 tons material output/yr

Control Equipment: Rotoclones C04 and C05 to control PM₁₀; exhaust through Stack S08

Emission factors from material balance. PM 2.5 removed during APE20230002 per facility provided particle size analysis. The particle analysis stated that the minimum particle size of the ingredients used are 15 microns. PM 10 was kept as a conservative estimate.

Emission Unit 04 (P04) Three (3) Post Blend Fillers: 1, 2, & 3 (1st Floor): Batch Process				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	1.2 lb/ton, Material Balance	Rotoclone & Dust Collector
	< 20% opacity	401 KAR 59:010, Section 3(1)(a)	NA	Daily visible emissions; EPA Method 9 test

¹ For PM 59:010 limit from 59:010 Section 3(2), E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs /hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr

Initial Construction Date: 8/2006

Process Description:

After mixing, the operator will initiate the mixer discharge cycle after empty containers are placed on the floor scales. Containers are moved by forklift to the packaging line container dumping area.

Applicable Regulation:

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

State Origin Requirements:

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

Comments:

Maximum operating rate: 4.5 tons material output/hr calculated as an average over 30 days of operation on a rolling basis; 21,263 tons material output/yr

Control Equipment: Dust Collector C06 to control PM₁₀ (vents indoors)
 Rotoclone C05 to control PM₁₀; exhaust through Stack S08

Emission factors from material balance. PM 2.5 removed during APE20230002 per facility provided particle size analysis. The particle analysis stated that the minimum particle size of the ingredients used are 15 microns. PM 10 was kept as a conservative estimate.

Emission Unit 05 (P05) Two (2) Packaging Lines 1 & 2: Batch Process				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	2.4 lb/ton, Material Balance	Rotoclone
	< 20% opacity	401 KAR 59:010, Section 3(1)(a)	NA	Daily visible emissions; EPA Method 9 test

¹ For PM 59:010 limit from 59:010 Section 3(2), E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs /hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr

Initial Construction Date: 8/2006

Process Description:

After containers are transferred to the packing surge bin area, the operator loads the appropriate container onto one of the two container dumpers. Containers are dumped into one of the two surge bins when a low level permissive indicates there is room for product. The surge bin capacity holds the contents of one container plus sufficient surge to prevent the packing machine from being starved during loading of the surge bin.

Applicable Regulation:

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

State Origin Requirements:

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

Comments:

Maximum operating rate: 9.0 tons material output/hr calculated as an average over 30 days of operation on a rolling basis; 21,263 tons material output/yr
 Control Equipment: Rotoclone C04 to control PM₁₀; exhaust through Stack S08

Emission factors from material balance. PM 2.5 removed during APE20230002 per facility provided particle size analysis. The particle analysis stated that the minimum particle size of the ingredients used are 15 microns. PM 10 was kept as a conservative estimate.

Emission Unit 06 (P06) Fifteen (15) Process Vessels for Cheese Food Production: Batch Process				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	0.3 lb/ton, Material Balance	Uncontrolled emissions potential
	< 20% opacity	401 KAR 59:010, Section 3(1)(a)	NA	Daily visible emissions; EPA Method 9 test

¹ For PM 59:010 limit from 59:010 Section 3(2), E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs /hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr

Initial Construction Date: 11/2006

Process Description:

The cheese food process is a batch process consisting of fifteen kettles for the manufacture of cheese food products. Bulk cheese is melted within the vessels; once melted small quantities of miscellaneous ingredients are added to the process vessel. The temperature of the vessel is raised for the remaining reaction step. Upon completion of the batch cycle, final product is transferred to final product packaging. A small 100 hp natural gas boiler supplies the heat for the cheese food process. Dependent upon the specific cheese food product, the batch process time ranges from a minimum of 10 hours per batch to a maximum of 80 hours per batch. Periodic cleaning/ sanitizing of the vessels is conducted using a chlorine-containing solution. On a weekly basis fogging of the cheese food process area is conducted using Quaternary Ammonium. These cleaning and sanitizing steps are required to maintain a safe and sanitary food-processing environment in compliance with requirements of the Food and Drug Administration (FDA).

Applicable Regulation:

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

State Origin Requirements:

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

Comments:

Maximum operating rate: 5.117 tons material output/hr total; 44,826 tons material output/yr total
 Control Equipment: Wet scrubber (H₂O) for odor control only; exhaust through Stack S03

Emission factors from Emission Master 7.2, “Control of Volatile Organic Compounds Emission from Batch Processes – Alternative Control Techniques Information Document” (EPA-450-020) for VOC, engineering estimate based on AP-42 Chapter 11.17 for particulate matter, material balance for chlorine.

H₂S emission factor based on engineering estimate from a Givaudan test vessel during 502(b)10 change (APE20190002). The requirement to operate the scrubber at all times the emission unit is operating was added during APE20230002 to help the facility address the standards related to 401 KAR 53:010 for odor due to receiving odor complaints. P06 passed SCREENView modeling using uncontrolled emissions (see **Section 4, Air Toxics Analysis**).

PM 2.5 removed during APE20230002 per facility provided particle size analysis. The particle analysis stated that the minimum particle size of the ingredients used are 15 microns. PM 10 was kept as a conservative estimate.

Emission Unit 06 (P06) Fifteen (15) Process Vessels for Cheese Food Production: Batch Process				
Emission Unit 08 (P08) Spray Dry Batching System				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	3.0 lb/ton, Material Balance	Dust Collector
	< 20% opacity	401 KAR 59:010, Section 3(1)(a)	NA	Daily visible emissions; EPA Method 9 test
<p>1 For PM 59:010 limit from 59:010 Section 3(2), E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs /hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr</p> <p>Initial Construction Date: 8/2008</p> <p>Process Description: The batching system consists of two super sack dispensing stations, a tote dispensing station, a maltodextrin receiver, and a manual dump station. A dust collector controls emissions from the batching system. The system feeds either a batch tank or a hold tank, both of which are also vented to the dust collector to allow for the manual addition of dry materials to either of those tanks.</p> <p>Applicable Regulation: 401 KAR 59:010, New Process Operations, is applicable to each affected facility associated with a process operation which is not subject to another emission standard with respect to particulates in chapter 59, commenced on or after July 2, 1975.</p> <p>Comments: Maximum operating rate: 1.35 tons material output/hr calculated as an average over 30 days of operation on a rolling basis Control Equipment: Dust Collector to control PM₁₀; exhaust through Stack S04; wet material to biofilter (for odor control only) and exhaust through S09</p> <p>Emission factors from material balance. The requirement to operate the biofilter at all times the emission unit is operating was added during APE20230002 to help the facility address the standards related to 401 KAR 53:010 for odor due to receiving odor complaints. PM 2.5 removed during APE20230002 per facility provided particle size analysis. The particle analysis stated that the minimum particle size of the ingredients used are 15 microns. PM 10 was kept as a conservative estimate.</p>				

Emission Unit 010 (P010) Three (3) Mixer/Blenders #4, #5 and #6 (All Floors): Batch Process				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	1.2 lb/ton, Material Balance	Rotoclone
	< 20% opacity	401 KAR 59:010, Section 3(1)(a)	NA	Daily visible emissions; EPA Method 9 test

¹ For PM 59:010 limit, E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs /hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr

Initial Construction Date: 11/2009

Process Description:

Bulk ingredients are pneumatically conveyed from the silos to the selected scale hopper. Product and air is separated by a cyclone and conveying air will be vented to the central dust collection system. Each bulk scale is equipped with an explosion vent and vent duct penetrating the building that can be cleaned and inspected during the cleaning process. During bulk ingredient scaling, the operator will position and prepare to dump minors and micro ingredients with the drum dumper and/or bag dumping station. As soon as the mixer charge permissive is established, the bulk scale discharge cycle will start. At this time the operator will commence loading of the mixer with ingredient drums and bags (the system will allow the operator to dump drums and bags simultaneously through drum dumping and bag dumping stations). Subsequently, any flavor oils will be introduced into the pressurized pot, or fats introduced by drum.

Applicable Regulation:

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

Comments:

Maximum operating rate: 0.94 tons material output/hr, 8,234 tons material output/yr
 Control Equipment: Rotoclone C12 to control PM₁₀; exhaust through Stack S06
 Emission factors from material balance. PM 2.5 removed during APE20230002 per facility provided particle size analysis. The particle analysis stated that the minimum particle size of the ingredients used are 15 microns. PM 10 was kept as a conservative estimate.

Emission Unit 012 (P012) One Packaging Line #3A: Batch Process				
Pollutant	Emission Limit or Standard¹	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	2.4 lb/ton, Material Balance	Rotoclone
	< 20% opacity	401 KAR 59:010, Section 3(1)(a)	NA	Daily visible emissions; EPA Method 9 test
<p>¹ For PM 59:010 limit, E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs /hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr</p> <p>Initial Construction Date: 11/2009</p> <p>Process Description: After containers are transferred to the packing surge bin area, the operator loads the appropriate container onto one of the two container dumpers. Containers are dumped into one of the two surge bins when a low level permissive indicates there is room for product. The surge bin capacity holds the contents of one container plus sufficient surge to prevent the packing machine from being starved during loading of the surge bin.</p> <p>Applicable Regulation: 401 KAR 59:010, New Process Operations, is applicable to each affected facility associated with a process operation which is not subject to another emission standard with respect to particulates in chapter 59, commenced on or after July 2, 1975.</p> <p>Comments: Maximum capacity: 4.5 tons material output/hour; 39,420 tons material output/year Controls: Rotoclone C12 for PM₁₀, exits through S04, exits through S06</p> <p>Emission factors from material balance. PM 2.5 removed during APE20230002 per facility provided particle size analysis. The particle analysis states that the minimum particle size of the ingredients used are 15 microns. PM 10 was kept as a conservative estimate.</p>				

Emission Unit 10 (P013) Emergency Generator

Initial Construction Date: 9/2006

Process Description:

Provides emergency power during the loss of commercial power.

Applicable Regulation:

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, is applicable to the natural gas-fired emergency generator.

Comments:

Make/Model:	Kohler 60 RZG
Rated Capacity:	105 HP, 60 kW
Type:	4 stroke lean burn, spark ignition, emergency generator
Total Displacement:	5.7 L (350 cu. in) / 8 cylinder
Manufacture Date:	December 2005
Installation Date:	September 2006

As per 40 CFR 63.6590(a)(2)(iii), a stationary RICE located at an area source of HAP emissions is new if construction is commenced on or after June 12, 2006. Pursuant to 40 CFR 60.6590(c)(1), this engine must meet the requirements of 40 CFR 63, Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart JJJJ. However, Subpart JJJJ is not applicable to this engine as the manufacture date is before January 1, 2009 as specified in 40 CFR 60.4230(a)(4)(iv).

Emission Unit 014 (P014) Seventeen (17) Filtermat, Paste, & MID Batch Reactors				
Pollutant	Emission Limit or Standard¹	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM ¹	$E = 2.34$ $E = 3.59P^{0.62}$ $E = 17.31P^{0.16}$	401 KAR 59:010, Section 3(2)	0.12 lb/ton, Material Balance	Emission Potential
	< 20% opacity	401 KAR 59:010, Section 3(1)(a)	NA	Daily visible emissions; EPA Method 9 test
H ₂ S	14 µg/m ³ (0.01 ppm)	401 KAR 53:010 Section 1	26.02 lb/batch, Modeling	Biofilter, Emission Factor, Process Rate

¹ For PM 59:010 limit, E= rate of particulate emissions in lb/h and P= process weight in tons/hr, Equation ranges based on process rate from top to bottom are: <1,000 lbs/hr, 1,000 – 60,000 lbs/hr, >60,000 lbs/hr

Initial Construction Date: 11/2009

Process Description:

The Filter Mat Reactors are batch processes consisting of 3 reactors responsible for making food products. Bulk materials are dumped and subsequently heated within the vessels; once melted small quantities of miscellaneous ingredients are added to the process vessel. The temperature of the vessel is raised for the remaining reaction step. Upon completion of the batch cycle, final product is transferred to final product packaging or transferred to another process within the site. The Paste and MID Reactors are batch processes consisting of reactors responsible for making food products. Bulk materials are dumped and subsequently heated within the vessels. Small quantities of miscellaneous ingredients are added to the process vessel as well. The temperature of the vessel is raised for the remaining reaction step. Upon completion of the batch cycle, final product is transferred to final product packaging or transferred to another process within the site.

Applicable Regulation:

401 KAR 53:010, Ambient Air Quality Standard, applies to ambient air quality with respect to hydrogen sulfide emissions from the reactors

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

Comments:

- Filter Mat: Reactor 1, Reactor 2 and Reactor 3 (1000 gallons each)
- Paste Reactors: T9R (1500 gal); T11R (1500 gal); T8R (400 gal); T14R (50 gal); T13R (400 gal); T12R (500 gal); T7R (1500 gal); T6R (500 gal); and T21TOR (10 gal)
- MID Reactors: M7R (1000 gal); M8R (1000 gal); M6R (560 gal); M9R (100 gal); and M10TOR (10 gal)
- Paste Tanks: T1 (800 gal), T2 (800 gal), T3 (800 gal), T4 (800 gal), T5 (300 gal), T17 (30 gal), T18 (80 gal), T19 (200 gal), T20 (60 gal), T15 (200 gal), T10 (1000 gal), T16 (Liquefier, 300 gal)
- MID Tanks: M1 (200 gal), M2 (500 gal), M3 (800 gal), M4 (1000 gal), M5 (60 gal)

Emission Unit 014 (P014) Seventeen (17) Filtermat, Paste, & MID Batch Reactors

Construction Date of biofilter: December 2012

Maximum capacity: 5.088 tons/hour; 44,572 tons/year

Controls: Biofilter for H₂S, designed for 0.1 ppm maximum emissions, exits through S07. Rotoclones are used to prevent fouling of biofilter media and are not federally enforceable controls.

Emission Factors from modeling for H₂S, material balance for all others.

Emissions of H₂S were modeled with SCREEN View on October 9, 2024 to demonstrate compliance with the standard in 401 KAR 53:010.

The biofilter has a maximum design inlet concentration of 250 ppm H₂S. The biofilter is guaranteed to 0.1 ppm outlet H₂S emissions (24 hour average) based on a maximum inlet concentration of 250 ppm. This concentration was updated from 1.0 ppm during APE20180003. Based on the information supplied in the application, the biofilter should continue to operate below the maximum design inlet concentration.

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 Compliance Testing
07	Scrubber/Demister	PM lbs/ton processed	401 KAR 59:010	One time for increase in production	Method 1, 2, 3, 4, & 5	5.08 lb/ton	N/A	N/A	CMN20100001	Cancelled
07	Scrubber/Demister	PM lbs/ton processed	401 KAR 59:010	Within 180 days of issuance of F-08-022	Method 1, 2, 3, 4, & 5	6.59 lb/hr	1.21 lb/hr	5,325 lb/hr	CMN20090001	10/27/2009
07 – Filtermat Scrubber	Scrubber/Demister	PM lbs/ton processed	401 KAR 59:010	Initial	Method 5	2.34 lb/hr	0.255 lb/hr	1,184 lb/hr	CMN20070001	3/14/2007
07 – Minor Source Ingredients	Scrubber/Demister	PM lbs/ton processed	401 KAR 59:010	Initial	Method 5	13.64 lb/hr	0.218 lb/hr	17,227 lb/hr	CMN20070001	3/14/2007

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

N/A

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 53:010, Ambient Air Quality Standards (for H ₂ S emissions)	EU 014
401 KAR 59:010, New Process Operations	EU 01, 02, 03, 04, 05, 06, 07, 08, 010, 012, 014
401 KAR 59:015, New Indirect Heat Exchangers	EU 01, 002, 07
401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	EU 013
401 KAR 63:020, Potentially hazardous matter or toxic substance	EU 02, 03,04, 05, 06

Table C - Summary of Precluded Regulations:

Precluded Regulations	Emission Unit
401 KAR 51:017, Prevention of Significant Deterioration	Source-wide
401 KAR 52:020, Title V Permits	Source-wide

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS (CONTINUED)

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 SCREEN View on October 9,2024 of potentially hazardous matter or toxic substances (Chlorine) 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*

The Division for Air Quality (Division) has performed SCREEN View on October 9,2024 of potentially toxic substances (Hydrogen Sulfide) 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 53:010.

Single Source Determination

N/A

SECTION 5 – PERMITTING HISTORY

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/ Syn Minor
S-05-121	Minor Source Initial	APE20050001	6/28/2005	7/14/2005	Initial construction/operation	N/A
S-05-121 R1	Minor Source Revision	APE20060001	8/30/2006	9/26/2006	Addition of cheese process	N/A
S-05-121 R2	Minor Source Revision	APE20070001	3/14/2007	3/22/2007	Addition of a new dust collector to emission point 03 (P03)	N/A
N/A (Application Withdrawn)	Minor Source Revision	APE20080001	4/23/2008	Application withdrawn, see APE20080002	Increase in production for P01-P05	N/A
N/A (incorporated into APE20080003)	Conditional Major Significant Revision	APE20080002	6/10/2008	10/9/2008	See APE20080001	N/A
F-08-022	Conditional Major Significant Revision	APE20080003	6/10/2008	10/9/2008	Production increases from APE20180002 and the addition of P07(spray dryer) and P08 (batching system)	N/A
F-08-022 R1	Conditional Major Minor Revision	APE20090003	4/15/2009	6/2/2009	Addition of packaging line no. 3	N/A
F-08-022 R2	Conditional Major Significant Revision	APE20090005	11/10/2009	3/12/2010	Addition of three mixer/blenders, a new pre-weighment pour area, packaging line #4, and two silos and two partial pre-weighment areas	N/A
F-08-022 R3	Conditional Major Minor Revision	APE20120002	11/26/2012	1/10/2013	Replacement of fabric filter dust collectors (C10 & C11) with rotoclones, addition of strobic fans, addition of biofilter, moving emergency generator to Section B of the permit.	N/A
F-13-038	Conditional Major Renewal	APE20130001	6/20/2013	3/19/2014	Renewal of Conditional Major Operating Permit	N/A

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
F-13-038 R1	Conditional Major Minor Revision	APE20150001	2/26/2016	3/17/2016	Change in control equipment configuration: P03 controlled by rotoclone C05, P04 addition of secondary hoods to C04, P010 addition of secondary hoods to C12	N/A
F-13-038 R2	Conditional Major Minor Revision	APE20160001	11/22/2016	2/9/2017	Removal of pre-weighment pours area (P011) and rotoclone (C13)	N/A
F-18-047	Renewal	APE20180003	10/15/2018	4/13/2019	Renewal, addition of six (6) reactors to Emission Unit 014	N/A
F-18-047 R1	Conditional Major Minor Revision	APE20210001	5/6/2021	9/21/2021	Removal of EU02 (P02) Minor Source Ingredients. H ₂ S emissions revisions. Addition of insignificant Griller 1 and 2.	N/A

SECTION 6 – PERMIT APPLICATION HISTORY

None

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS	– Ambient Air Quality Standards
Btu	– British thermal unit
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
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
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
PTE	– Potential to Emit
SO ₂	– Sulfur Dioxide
VOC	– Volatile Organic Compounds
mmBtu/hr	– million BTU per hour
mmscf/hr	– million standard cubic feet per hour