

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

Conditional Major, Operating
PERMIT ID: F-23-034
Hillshire Brands - Claryville Plant
1099 Bob Huber Drive, Alexandria, KY 41001
December 6, 2023
Michael Baidy, Reviewer
Source ID: 21-037-00074
Agency Interest #: 586
Activity ID: APE20230003

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SECTION 1 - SOURCE DESCRIPTION

SIC Code and description: 2013, Sausages and Other Prepared Meat Products (except lard made from purchased materials).

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: 0

County: Campbell

Nonattainment Area N/A PM₁₀ PM_{2.5} CO NO_x SO₂ Ozone Lead
If yes, list Classification:

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

If yes, for what pollutant(s)?

PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

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

If yes, for what pollutant(s)?

PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

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

If yes, list which pollutant(s):

PTE* greater than 25 tpy for combined HAP Yes No

*PTE does not include self-imposed emission limitations.

Description of Facility:

Hillshire Brands – Claryville Plant (Hillshire) is a meat packing and meat products manufacturing facility. Raw meats are stuffed and loaded into casings upstream of the cooking and smoking operations at the plant. The products are then loaded onto racks for processing in one of the batch or continuous smokehouses or the Freddy Hirsch units.

The meat smokehouses are used to add flavor, color, and aroma to meat products. The production of smoked meats typically involves four operating steps (1) tempering and drying, (2) smoking, (3) cooking, and (4) chilling.

Hillshire operates 12 batch smokehouses. Six houses are dedicated to the production of hot dogs (Emission Units (EU): 05-09 and 18) and are equipped with natural gas burners with a rated heat input capacity of 2.75 MMBtu/hr. The remaining six (EU 10-11 and 13-16) are currently dedicated to deli meat production and are equipped with natural gas fired burners with a heat input capacity of 3.85 MMBtu/hr each. In the batch smokehouses, uncooked meat products are loaded into the cooking chamber using specially designed racks known as “trees”. The temperature and humidity within the chamber are controlled using heat generated by the natural gas fired burners and steam produced by the 5 natural gas fired boilers at the facility; 3 Cleaver

Brooks Boilers (EU 01-03), 8.37 MMBtu/hr each and 2 Cleaver Brooks boilers (EU 22 and 23) 12.56 MMBtu/hr each. Both natural wood smoke and liquid smoke can be injected into the batch smokehouses. Natural wood smoke is produced by pyrolyzing wood chips or sawdust in the smoke generator associated with each smokehouse. Liquid smoke is injected via atomizing spray nozzles located within the smokehouse. Two liquid smoke drenching cabinets are also used to apply liquid smoke to product before it is loaded into the batch houses (Insignificant Activities (IA) 06 and 08). The finished product is sent to a batch brine chiller for cooling.

The two continuous houses (EU 04 and 12) are dedicated to the production of hot dogs and have natural gas fired burners with a heat input capacity of 1.65 MMBtu/hr. Products are loaded into the continuous smokehouses on sticks, which connect to a conveyor system that transports the products through the liquid smoke drenching, cooking, and cooling zones of the house. Liquid smoke is showered over the product in the drenching zone (EU 25 and 26). The cooking portion of the continuous houses is broken up into three smaller zones each of which have a distinct smoke density, temperature, and humidity profile. Heat generated by the natural gas fired burners and steam generated by the boilers on-site are used to control the humidity and temperature within the cooking zones. The cooling zone is a brine cooled chamber that rapidly cools the product before it exits the house. Emissions from the drenching zone and each of the three cooking zones of the continuous houses are routed through dedicated stacks directly to the atmosphere [i.e., one stack for the drenching activities associated with each continuous house (EU 25 and 26) and three stacks for each continuous house (EU 04, and 12)].

The two Freddy Hirsch units (EU 31 and 32) are used in the production of coarse and emulsified products. Liquid smoke is applied to the products. The Freddy Hirsch lines rely on the steam from the boilers to cook the products.

The end products from the batch and continuous houses and the Freddy Hirsch units are then packaged and stored in a clean room for eventual shipment offsite. The humidity and purity of the atmosphere within the clean room are controlled using natural gas fired make-up air units (IA 4, 5, 7, 8 and 12), a natural gas fired dehumidification unit (IA 9), and a natural gas fired purge unit (IA 10).

As of the APE20220001 application, the two Protecon units (EU 20 & 21) are being replaced with two Freddy Hirsch Processing Lines (EU 31 & 32). The Freddy Hirsch lines replaced the Protecons in production of coarse and emulsified products as of June 26, 2023. Each line follows the process below: The pre-blended meat product is poured into a mixer for proper mixing before being sent to a Cozzini that forms and prepares the product for coextrusion. The product is coextruded with a chilled gel at a maximum rate of 9,000 lb/hr. The coextruded meat/ gel product is passed through a water cooker for initial cooking. The product will leave the water cooker and will go into the smoke drench where liquid smoke will be applied as a flavoring. The liquid smoke is the portion of the process that generates VOC and HAP emissions. The liquid smoke laden product is transferred to the 2 Freddy Hirsch Spiral dryers in series. Each dryer has an air intake system which keeps the dryers at 190-320°F (IAs 24-27). The emissions from each dryer are vented out of their own respective stack. There will be a total of two (2) stacks per line, so there will be four (4) stacks in total. The product then leaves the dryers and goes into a final steam cook and ultimately moves into the chilling process. After chilling the product is packaged.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-23-034

Activity: APE20230003

Application Received: 7/31/2023

Application Complete: 10/26/2023

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:

Hillshire requested a permit renewal with no changes however, one action from the previous permit, F-18-008 R1, is still in-progress. In APE20220001, Hillshire requested to replace the existing Protecon Lines (EU 20 & 21) with two Freddy Hirsch Processing Lines (EU 31 & 32). Hillshire completed construction of the Freddy Hirsch lines in June 2023 and requested an extension for the performance test as they encountered a production bottleneck rendering them incapable of achieving maximum production rate within the allotted time. A test extension was granted and the appropriate performance test will be performed after this permit has been issued.

F-23-034 Emission Summary		
Pollutant	2022 Actual (tpy)	PTE F-23-034 (tpy)
CO	2.21	110.63
NOx	1.57	86.66
PT	1.68	34.65
PM ₁₀	1.68	32.90
PM _{2.5}	1.22	29.71
SO ₂	1.61E-02	0.72
VOC	57.92	170.30
Lead	7.61E-06	3.00E-04
Greenhouse Gases (GHGs)		
Carbon Dioxide	1,833.87	109,950.39
Methane	3.51E-02	1.98
Nitrous Oxide	3.36E-02	1.69
CO ₂ Equivalent (CO ₂ e)	1,844.77	110,505.31
Hazardous Air Pollutants (HAPs)		
Acetaldehyde	0.49	5.09
Acrolein	0.45	0.76
Formaldehyde	0.59	2.49
Hexane; N-Hexane	N/A	1.09
Phenol	N/A	1.82
Combined HAPs:	1.53	11.25

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Units # 01, 02, & 03 Three Natural Gas Fired Indirect Heat Exchangers				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	0.45 lb/MMBtu	401 KAR 59:015, Section 4(1)(c)	7.6 lb/MMscf (AP-42 Ch. 1.4 Table 1.4-2)	Assumed based upon natural gas combustion
Opacity	20% opacity	401 KAR 59:015, Section 4(2)	N/A	Assumed based upon natural gas combustion
SO ₂	2.06 lb/MMBtu	401 KAR 59:015, Section 5(1)(c)2.b.	0.6 lb/MMscf (AP-42 Ch. 1.4 Table 1.4-2)	Assumed based upon natural gas combustion
VOC	Source-wide 90 tpy	401 KAR 52:030	5.5 lb/MMscf (AP-42 Ch. 1.4 Table 1.4-2)	Monthly recordkeeping and emission calculation
<p>Initial Construction Date: 1/1985</p> <p>Process Description: The three Cleaver Brooks boilers are rated at 8.37 MMBtu/hr each. The boilers provide steam and heat to the plant.</p> <p>Applicable Regulation: 401 KAR 59:015, <i>New indirect heat exchangers</i>, is applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972.</p> <p>Non-applicable Regulation: 401 KAR 60:005, Section 2(2)(d), 40 C.F.R. 60.40c to 60.48c (Subpart Dc), <i>Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units</i> is not applicable because the boilers are less than or equal to 10 MMBtu/hr.</p> <p>401 KAR 63:002, Section 2(4)(jjjj), 40 C.F.R. 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), <i>National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources</i>, is applicable to boilers located at an area source. This regulation does not apply because the boilers are gas fired boilers [40 CFR 63.11195(e)].</p> <p>Comments: Emission factors are from AP 42 1.4. The total heat input capacity at time of installation for the boilers was 25.11 MMBtu/hr.</p>				

Emission Units # 04 & 12 Continuous Smokehouse Ovens 1 and 2						
Emission Units # 25 & 26 Liquid Smoke Units						
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis			Compliance Method
PM	$P \leq 0.5 \text{ ton/hr}$ $E = 2.34 \text{ lb/hr}$ $0.5 < P \leq 30$ $E = 3.59 \times P^{0.62}$ $P > 30$ $E = 17.31 \times P^{0.16}$	401 KAR 59:010, Section 3(2)	EU	Units	Source	Assumed based upon natural gas combustion and meat being processed
			04	7.6 lb/MMscf	AP42 1.4-2	
			12			
			25	0.005 lb/ton	2017 applica tion	
			26			
Opacity	20% opacity	401 KAR 59:010, Section 3(1)(a)	N/A			Assumed based upon natural gas combustion and meat being processed
VOC	Source-wide 90 tpy	401 KAR 52:030	5.5 lb/MMscf (AP-42 Ch. 1.4 Table 1.4-2)			Monthly recordkeeping and emission calculation

P = process rate (tons/hr) and E = emission limit (lbs/hr)

Initial Construction Date: Listed by emission unit:

EU 04 & 12 – 9/1/1984

EU 25 & 26 – 1/1/2003

Process Description:

The two continuous smokehouses (EUs 04 and 12) are dedicated to the production of hot dogs and have natural gas fired burners with a heat input capacity of 1.65 MMBtu/hr each. Products are loaded into the continuous smokehouses on sticks, which connect to a conveyor system that transports the products through the liquid smoke drenching, cooking, and cooling zones of the smokehouse. Liquid smoke is showered over the product in the drenching zones (EUs 25 and 26). The cooking portion of the continuous smokehouse is broken up into three smaller zones each of which have a distinct smoke density, temperature, and humidity profile. Heat generated by the natural gas fired burners and steam generated by the on site boilers are used to control the humidity and temperature within the cooking zones. The cooling zone is a brine cooled chamber that rapidly cools the product before it exits the house. Emissions from the drenching zone and each of the three cooking zones of the continuous smokehouses are routed through dedicated stacks directly to the atmosphere [i.e., one stack for the drenching activities associated with each smokehouse (EUs 25 & 26) and three stacks for each continuous house (EUs 04 & 12)].

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, commenced on or after July 2, 1975.

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

**Emission Units # 04 & 12 Continuous Smokehouse Ovens 1 and 2
 Emission Units # 25 & 26 Liquid Smoke Units**

Comments:

EU 04 and 12 emission factors for natural gas burning are from AP-42 Chapter 1.4. The meat flavoring emission factors (VOC and formaldehyde) are from the 2015 application. For EU 25 and 26, the emission factors are from the 2017 renewal application.

**Emission Units # 05-09 & 18 Batch Meat Smokehouse Ovens
 Emission Units # 10, 11, & 13-16 Batch Meat Smokehouse Ovens**

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis		Compliance Method
PM	$P \leq 0.5 \text{ ton/hr}$ $E = 2.34 \text{ lb/hr}$ $0.5 < P < 30$ $E = 3.59 \times P^{0.62}$ $P \geq 30$ $E = 17.31 \times P^{0.16}$	401 KAR 59:010, Section 3(2)	Wood & Sawdust = 30 lb/ton	2011 stack test with throughput of 30 lbs of wood per hour	Assumed based upon natural gas and wood usage and meat being processed.
			Natural gas = 7.6 lb/MMscf	AP-42 Ch. 1.4 Table 1.4-2	
Opacity	20% opacity	401 KAR 59:010, Section 3(1)(a)	N/A		Assumed based upon natural gas usage only. If wood is burned then a weekly visual observation is required. If emissions are seen, perform a U.S. EPA Reference Method 9 test.
VOC	Source-wide 90 tpy	401 KAR 52:030	Wood & Sawdust = 43.3 lb/ton	2011 stack test with throughput of 30 lbs of wood per hour	Monthly recordkeeping and emission calculation
			Natural Gas = 5.5 lb/MMscf	AP-42 Ch. 1.4 Table 1.4-2	

P = process rate (tons/hr) and E = emission limit (lbs/hr)

**Emission Units # 05-09 & 18 Batch Meat Smokehouse Ovens
 Emission Units # 10, 11, & 13-16 Batch Meat Smokehouse Ovens**

Initial Construction Date: Listed by emission unit:

EU 05-09 & 18 – 1984-1985
 EU 10, 11, & 13-16 – 1986-1987

Process Description:

Hillshire operates 12 batch smokehouses. Six smokehouses are dedicated to the production of hot dogs (EUs 05, 06, 07, 08, 09, and 18) and are equipped with natural gas burners with a rated heat input capacity of 2.75 MMBtu/hr each. The remaining six smokehouses (EU 10, 11, and 13, 14, 15, 16) are currently dedicated to deli meat production and are equipped with natural gas fired burners with a heat input capacity of 3.85 MMBtu/hr each.

In the batch smokehouses, uncooked meat products are loaded into the cooking chamber using specially designed racks known as “trees”. The temperature and humidity within the chamber are controlled using heat generated by the natural gas fired burners and steam produced by the 5 natural gas fired boilers at the facility [3 Cleaver Brooks Boilers at 8.37 MMBtu/hr each (EU 01, 02, & 03) and 2 Cleaver Brooks boilers at 12.56 MMBtu/hr each (EU 22 & 23)]. Both natural wood smoke and liquid smoke can be injected into the batch smokehouses. Natural wood smoke is produced by pyrolyzing wood chips or sawdust in the smoke generator associated with each smokehouse. Liquid smoke is injected via atomizing spray nozzles located within the smokehouse. Two liquid smoke drenching cabinets are also used to apply liquid smoke to product before it is loaded into the batch houses (Insignificant Activities 06 and 08). The finished product is sent to a batch brine chiller for cooling.

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, commenced on or after July 2, 1975.

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

The emission factors for wood usage are from the 2011 stack test with a stack test throughput of 30 lbs of wood per hour and AP-42 Chapter 1.9. The emission factors for natural gas are from AP-42 Chapter 1.4.

Emission Units # 22 & 23 Two Indirect Heat Exchangers

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	0.38 lb/MMBtu	401 KAR 59:015, Section 4(1)(c)	AP-42 Ch. 1.4 Table 1.4-2 and AP-42 Ch. 1.5 Table 1.5-1	Assumed based upon natural gas and propane combustion

Emission Units # 22 & 23 Two Indirect Heat Exchangers				
Opacity	20 % Opacity	401 KAR 59:015, Section 4(2)	N/A	Assumed based upon natural gas and propane combustion
SO ₂	1.54 lb/MMBtu	401 KAR 59:015, Section 5(1)(c)2.b.	AP-42 Ch. 1.4 Table 1.4-2 and AP-42 Ch. 1.5 Table 1.5-1	Assumed based upon natural gas and propane combustion
VOC	Source-wide 90 tpy	401 KAR 52:030	AP-42 Ch. 1.4 Table 1.4-2 and AP-42 Ch. 1.5 Table 1.5-1	Monthly recordkeeping and emission calculation
Initial Construction Date: 1/2004				
Process Description: The two Cleaver Brooks boilers are rated at 12.56 MMBtu/hr each. The boilers provide steam and heat to plant.				
Applicable Regulation: 401 KAR 59:015 , <i>New indirect heat exchangers</i> , is applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972 (401 KAR 59:015, Section 2(1)). 401 KAR 60:005, Section 2(2)(d) , 40 C.F.R. 60.40c to 60.48c (Subpart Dc), <i>Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units</i> is applicable to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr.				
Non-applicable Regulation: 401 KAR 63:002, Section 2(4)(jjjj) , 40 C.F.R. 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), <i>National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources</i> , is applicable to boilers located at an area source. This regulation does not apply because the boilers are gas fired boilers [40 CFR 63.11195(e)].				
Comments: Emission factors for natural gas are from AP-42 Chapter 1.4 and emission factors for propane are from AP-42 Chapter 1.5. Total heat input capacity at the time of installation for the boilers was 50.23 MMBtu/hr.				

Emission Unit # 24 Hot Water Heater (Direct-fired heat exchanger)				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	P ≤ 0.5 ton/hr E = 2.34 lb/hr 0.5 < P < 30	401 KAR 59:010, Section 3(2)	AP-42 Ch. 1.4 Table 1.4-2 and AP-42 Ch. 1.5 Table 1.5-1	Assumed based upon natural gas and propane combustion

Emission Unit # 24 Hot Water Heater (Direct-fired heat exchanger)				
	$E = 3.59 \times P^{0.62}$ $P \geq 30$ $E = 17.31 \times P^{0.16}$			
Opacity	20% Opacity	401 KAR 59:010, Section 3(1)(a)	N/A	Assumed based upon natural gas and propane combustion
VOC	Source-wide 90 tpy	401 KAR 52:030	AP-42 Ch. 1.4 Table 1.4-2 and AP-42 Ch. 1.5 Table 1.5-1	Monthly recordkeeping and emission calculation
P = process rate (tons/hr) and E = emission limit (lbs/hr)				
Initial Construction Date: 1/2007				
Process Description: The Quick Water hot water heater unit is rated at 16 MMBtu/hr. The hot water heater for the building primarily uses natural gas as fuel but can accept propane as a secondary fuel.				
Applicable Regulation: 401 KAR 59:010 , <i>New process operations</i> 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 63:020 , <i>Potentially hazardous matter or toxic substances</i> , 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.				
Non-applicable Regulation: 401 KAR 60:005, Section 2(2)(d) , 40 C.F.R. 60.40c to 60.48c (Subpart Dc), <i>Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units</i> is not applicable to hot water heaters because they are not considered indirect heat exchangers.				
Comments: Emission factors for natural gas are from AP-42 Chapter 1.4 and emission factors for propane are from AP-42 Chapter 1.5.				

Emission Unit # 27 Indirect Heat Exchanger				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	0.34 lb/MMBtu	401 KAR 59:015, Section 4(1)(c)	AP-42 Chapter 1.4 and 1.5	Assumed based upon natural gas and propane combustion
Opacity	20% opacity	401 KAR 59:015, Section 4(2)	N/A	Assumed based upon natural gas and propane combustion

Emission Unit # 27 Indirect Heat Exchanger				
SO ₂	1.24 lbs/MMBtu	401 KAR 59:015, Section 5(1)	AP-42 Chapter 1.4 and 1.5	Assumed based upon natural gas and propane combustion
Initial Construction Date: 1/2009				
Process Description: The Cleaver Brooks boiler is rated at 20.4 MMBtu/hr. The boiler provides steam and heat to plant. The boiler primarily uses natural gas as fuel but can accept propane as a secondary fuel.				
Applicable Regulation: 401 KAR 59:015 , <i>New indirect heat exchangers</i> , is applicable to indirect heat exchangers having a heat input capacity greater than 1 million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972. 401 KAR 60:005, Section 2(2)(d) , 40 C.F.R. 60.40c to 60.48c (Subpart Dc), <i>Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units</i> is applicable to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr.				
Non-applicable Regulation: 401 KAR 63:002, Section 2(4)(jjjj) , 40 C.F.R. 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), <i>National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources</i> , is applicable to boilers located at an area source. This regulation does not apply because the boiler is gas fired [40 CFR 63.11195(e)].				
Comments: Emission factors are from AP 42 1.4 and AP 42 1.5 for propane. The total heat input capacity at time of installation for the boiler was 70.63 MMBtu/hr.				

Emission Unit # 28 Existing Emergency Generator Engine
Initial Construction Date: 1/2003
Process Description: Emergency generator is used at the plant to supply energy in case of a loss of 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), <i>National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines</i>
Comments: The generator is a Cummins diesel fueled engine rated at 380 hp. Emission factors are based on AP 42 Chapter 3.3 Tables 3.3.1 and 3.3-2.

Emission Unit # 30 Two Parts Washers

Initial Construction Date: 1/1984

Process Description:

Two part washers used for metal cleaning in the facility.

Applicable Regulation:

401 KAR 59:185, *New solvent metal cleaning equipment* is applicable to cold cleaners, open top vapor degreasers, and conveyORIZED degreasers that utilize volatile organic compounds (VOCs) to remove soluble impurities from metal surfaces constructed on or after June 29, 1979 and are located in Boone, Campbell, or Kenton counties. This regulation is applicable because Nestle, USA Inc. is located in Campbell county [401 KAR 59:185, Section 2(3)].

Comments:

As per 9-22-2023 *Parts Washers* email, the parts washers are serviced by Safety Kleen twice per year. After the email exchange, the Division received a phone call from Hillshire and confirmed that at most 12 gallons of solvent were lost to evaporation per year (12 gallons combined between both parts washers).

See 2017 renewal application P.109 for additional details.

The previous emission data can also be found in the 2023 application, excel document *HillshireBrands-PTECalcs_final_19Jul2023RK* on sheet *EU30*.

Emission Units # 31 & 32 Freddy Hirsch Processing Lines

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	$P \leq 0.5 \text{ ton/hr}$ $E = 2.34 \text{ lb/hr}$ $0.5 < P < 30$ $E = 3.59 \times P^{0.62}$ $P \geq 30$ $E = 17.31 \times P^{0.16}$	401 KAR 59:010, Section 3(2)	0.166 lb/ton (See 2022 application)	Assumed based upon natural gas and meat being processed
Opacity	20% Opacity	401 KAR 59:010, Section 3(1)(a)	N/A	Assumed based upon natural gas and meat being processed
VOC	Source-wide 90 tpy	401 KAR 52:030	1.42 lb/ton (See 2022 application)	Monthly recordkeeping and emission calculation

Initial Construction Date: 4/4/2022

Emission Units # 31 & 32 Freddy Hirsch Processing Lines

Process Description:

Maximum Rated capacities: 9,000 lbs/hr meat & 58.5 gal/hr liquid smoke per unit

Manufacturer: Freddy Hirsch

Model: 760CW360 HT

The pre-blended meat product is mixed before being sent to a Cozzini that forms and prepares the product. The product is coextruded with a chilled gel as a maximum rate of 9,000 lbs/hr. The coextruded product is passed through a water cooker for initial cooking. The product leaves the water cooker and into the smoke drench where liquid smoke is applied. The liquid smoke laden product is transferred to the 2 Freddy Hirsch spiral dryers in series. The product leaves the second dryer and goes into a final steam cook before chilling and packaging.

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, commenced on or after July 2, 1975.

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

Emission Factors are from stack tests performed at this facility as well as the Saint Joseph Missouri facility. See the APE20220001 application for more details.

As of the APE20230003 application, EUs 20 & 21, the Protecon Units, have been fully removed and replaced with EUs 31 & 32 Freddy Hirsch Lines. The following timeline was obtained from the Notification of Construction submitted during APE20230003:

EUs 31 and 32 commenced construction on April 4th, 2022.

EU 20 was decommissioned and removed from the facility on February 6th, 2023.

EU 31 commenced shakedown and began manufacturing product on February 20th, 2023.

EU 21 was decommissioned and removed from the facility on June 9th, 2023.

EU 31 commenced shakedown and began manufacturing product on June 26th, 2023.

However, as of July 6, 2023 (submission date for Notification of Construction) the maximum production rate has not yet been achieved. Hillshire discovered an operational bottleneck at the final packaging stage limiting the process to 60% of the rated capacity. Hillshire is installing new packaging equipment to eliminate the bottleneck. The packaging upgrade is scheduled for installation in February 2024. Hillshire requested an extension for the required stack test (See APE20230002) and an extension was granted by the Division.

See the email titled 9-7-2023 EU 31 & 32 Const. Notif. for the aforementioned documents.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

Testing Requirements/Results

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit (lb/hr)	Test Result (lb/hr)	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
EU 06, EU 12, EU 20, EU26	None	PM, VOC, acetaldehyde, acrolein, formaldehyde	401 KAR 50:045, Section 4		US EPA Reference Method 5, 25, NCASI Method 105	EU 06 PM = 4.62 EU 12 PM = 7.94 EU 26 PM = 7.94 *EU 20 was not tested for PM	EU 06 PM = 0.45 EU 12 PM = 0.03 EU 26 PM = 0.011	EU 06 PM = 0.45 EU 12 PM = 0.03 EU 26 PM = 0.011	CMN2011 0001	2/1/2011
EU 05-09, 10, 11, 13, 16, 18	None	VOC, acrolein, formaldehyde	401 KAR 50:045, Section 4	Initial	US EPA Reference Method 25, NCASI Method 105	N/A	Hot Dog Meat Batch House VOC: 44 lb/ton Acrolein: 1.71 lb/ton Formaldehyde : 5.71 lb/ton Deli Meat Batch House: VOC: 0.13 lb/hr	Emissions Factors	CMN2019 0001	10/30/2019

							Acrolein: 0.0009 lb/hr Formaldehyde : 0.0063 lb/hr			
EU 4, 12, 25, and 26	None	VOC, acrolein, formaldehyde	401 KAR 50:045, Section 4	Initial	US EPA Reference Method 25, NCASI Method A105	N/A	Continuous Smoke Stack #1 VOC: 0.088 lb/ton Acrolein: 0.00015 lb/ton Formaldehyde : 0.0019 lb/ton	Emissions Factors	CMN2020 0001	10/23/2020
						Continuous Smoke Stack #2 VOC: 0.035 lb/ton Acrolein: 0.00007 lb/ton Formaldehyde : 0.00059 lb/ton				
						Continuous Smoke Stack #3 VOC: 0.035 lb/ton Acrolein: 0.00006 lb/ton Formaldehyde : 0.0010 lb/ton				
						Liquid Smoke Stack VOC: 0.061 lb/ton				

							Acrolein: 0.00010 lb/ton Formaldehyde : 0.00093 lb/ton			
EU 20 & 21	None	VOC, acrolein, formaldehyde	401 KAR 50:045, Section 4	Initial	US EPA Reference Method 25, NCASI Method A105	N/A	Emulsified Meat VOC: 2.83 lb/ton Acrolein: 0.00175 lb/ton Formaldehyde : 0.0101 lb/ton	Emissions Factors	CMN2022 0001	1/28/2022
							Coarse Ground Meat VOC:4.83 lb/ton Acrolein:0.00 302 lb/ton Formaldehyde : 0.00504 lb/ton			
EU 31 & 32	None	VOC, acrolein, formaldehyde	401 KAR 50:045, Section 4	Initial	US EPA Reference Method 25, NCASI Method A105	N/A	N/A	To establish Emission Factors	N/A	N/A

Footnotes:

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
90 tpy VOC	To preclude 401 KAR 52:020, <i>Title V Permits</i>	Source-wide
1.8 tpy of formaldehyde	To keep emissions from the facility below the regional screening level (RSL)	EU 04, 12, 25, 26, 05-09, 10, 11, 13-16, 18, 20, 21, 31, 32, IA6 & IA8.
0.15 tpy of acrolein	To keep emission from the facility below the regional screening level (RSL)	EU 04, 12, 25, 26, 05-09, 10, 11, 13-16, 18, 31, 32, IA6 & IA8
607 tpy of wood or sawdust	To preclude 401 KAR 52:020, <i>Title V Permits</i>	EU 05, 06, 07, 08, 09, 10, 11, 13, 14, 15, 16, & 18

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:010, <i>New process operations</i>	EU 04, 12, 25, 26, 05, 06, 07, 08, 09, 10, 11, 13, 14, 15, 16, 18, 20, 21, 24, 31, & 32
401 KAR 59:015, <i>New indirect heat exchangers</i>	EU 01, 02, 03, 22, 23, & 27
401 KAR 63:020, <i>Potentially hazardous matter or toxic substances.</i>	EU 04, 12, 25, 26, 05, 06, 07, 08, 09, 10, 11, 13, 14, 15, 16, 18, 20, 21, 24, 31, & 32
401 KAR 60:005 Section 2(2)(d), 40 C.F.R. 60.40c to 60.48c (Subpart Dc), <i>Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.</i>	EU 22, 23, & 27
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), <i>National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.</i>	EU 28

Table C - Summary of Precluded Regulations:

N/A

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS (CONTINUED)

Table D - Summary of Non Applicable Regulations:

Non Applicable Regulations	Emission Unit
401 KAR 63:002, Section 2(4)(jjjj), 40 C.F.R. 63.11193 through 63.11237, Tables 1 through 8 (Subpart JJJJJ), <i>National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources</i>	EU 01, 02, 03, 24 & 27
401 KAR 60:005 Section 2(2)(d), 40 C.F.R. 60.40c to 60.48c (Subpart Dc), <i>Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.</i>	EU 01, 02, 03 & 24

Air Toxic Analysis

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

The Division for Air Quality (Division) has performed modeling using SCREEN View on October 19, 2022 of potentially hazardous matter or toxic substances (Formaldehyde, Acrolein, Acetaldehyde, and Phenol) 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-08-002	Renewal	APE20070001	2/10/2008	5/19/2008	Renewal	N/A
F-08-002 R1	Significant Revision	APE20090002	5/6/2009	8/17/2009	Significant Revision	N/A
F-13-011	Renewal	APE20120003	1/17/2013	7/1/2013	Renewal	N/A
F-13-011 R1	Minor Revision	APE20120004	1/21/2015	3/8/2016	Revision	N/A
F-13-011 R2	Minor Revision	APE20160002	3/31/2016	5/5/2016	Adding an insignificant activity 0.107 MMBTU/hr heater	N/A
F-18-008	Renewal	APE20170001	10/9/2017	2/3/2019	Updated emission factors, removed wood usage from EU 04 & 12, decrease maximum capacity of batch house wood burners (EU 05-09, 10, 11, 13-16, & 18)	N/A
F-18-008 R1	Minor Revision	APE20220001	10/13/2022	11/15/2022	Adding EU 31 & 32	N/A

SECTION 6 – PERMIT APPLICATION HISTORY

None.

APPENDIX A – ABBREVIATIONS AND ACRONYMS

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

APPENDIX B – INDIRECT HEAT EXCHANGER EMISSION LIMITATIONS

EU	Fuel(s)	Capacity (MMBtu/hr)	Constructed	Basis for PM Limit	Total Heat Input Capacity for PM Limit (MMBtu/hr)	Basis for SO ₂ Limit	Total Heat Input Capacity for SO ₂ Limit (MMBtu/hr)
01	Natural Gas	8.37	1985	Section 4(1)(c)	25.11	Section 5(1)(c)2.b.	25.11
02	Natural Gas	8.37	1985	Section 4(1)(c)	25.11	Section 5(1)(c)2.b.	25.11
03	Natural Gas	8.37	1985	Section 4(1)(c)	25.11	Section 5(1)(c)2.b.	25.11
22	Natural Gas	12.56	2004	Section 4(1)(c)	50.23	Section 5(1)(c)2.b.	50.23
23	Natural Gas	12.56	2004	Section 4(1)(c)	50.23	Section 5(1)(c)2.b.	50.23
27	Natural Gas	20.4	2009	Section 4(1)(c)	70.63	Section 5(1)(c)2.b.	70.63