Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS / SUMMARY

Conditional Major, Operating
Permit: F-25-003
Crown Cork & Seal Co. USA Inc.
1291 Prosperity Lane
Bowling Green, KY 42101
January 2, 2025
Jonathon Hughes, Reviewer

SOURCE ID:	21-227-00207
AGENCY INTEREST:	165233
ACTIVITY:	APE20240001

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SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 3411, Metal Cans

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

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

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

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

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

*PTE does not include self-imposed emission limitations.

Description of Facility:
Facility produces single piece aluminum can bodies that receive an inside protective coating, in addition to an outside ink decoration and varnish. This is the main body of a two-piece aluminum beverage can. Can ends manufacturing does not occur at this facility.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-25-003 Activity: APE20240001

Received: October 8, 2024 Application Complete Date: November 25, 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:
Renewal permit with no requested changes.

F-25-003 Emission Summary		
Pollutant	2023 Actual (tpy)	PTE F-25-003 (tpy)
CO	6.38	18.6
NOx	7.59	21.2
PT	0.622	1.69
PM_{10}	0.622	1.69
$PM_{2.5}$	0.622	1.69
SO_2	0.045	0.12
VOC	38.9	424*
Lead	0.00004	0.0001
Greenhouse Gases (GHGs)		
Carbon Dioxide	9039	23545
Methane	0.170	0.44
Nitrous Oxide	0.029	0.044
CO_2 Equivalent (CO_2e)	9052	23569
Hazardous Air Pollutants (HAPs)		
Formaldehyde	0.006	0.46
Hexane	0	0.35
Combined HAPs:	0.006	0.81

* Note: Emissions limited by federally-enforceable emission limitations to ensure the source remains below major source thresholds to be classified as major stationary source as defined in 401 KAR 52:001 and 401 KAR 51:001. This is the PTE for uncontrolled emissions.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit #1A Can Production Line 1 Emission Unit #2A Can Production Line 2				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
VOC	Source wide 90 tpy	401 KAR 52:030	Material Balance & MSDS	RTO / Rotary Concentrator, Testing, 98.1% DRE
	0.29 kg/l exterior base coat	40 CFR 60.492(a)	Material Balance & MSDS	Use of compliant materials assuming no VOC solvents added
	0.46 kg/l clear base coating and overvarnish	40 CFR 60.492(b)	Material Balance & MSDS	
	0.89 kg/l inside spray operation	40 CFR 60.492(c)	Material Balance & MSDS	
HAP	Source wide 9/22.5 TPY Single/Combined	401 KAR 52:030	Material Balance & MSDS	RTO / Rotary Concentrator, Testing, 98.1% DRE
PM	2.34 lbs/hr	401 KAR 59:010, Section 3(2)	Material Balance & MSDS with 87% Transfer Efficiency	Dry Filters & Baghouse, 99.9% C.E.
	20% opacity	401 KAR 59:010, Section 3(1)	N/A	Weekly visual observation

Initial Construction Date: 5/2020

Process Description:
Two identical production lines each containing the following equipment:

1. One (1) Minster DACH 165 cupping press
2. Nine (9) CMB Engineering bodymakers/trimmers
3. One (1) 3,000 cans per minute (cpm) can washer/dryer
4. One (1) UVIO bottom rim coater
5. Two (2) Rutherford decorators (2,200 cpm max per decorator) (Ink and Outside Roll Coating Varnish)
6. Two (2) 2,400 cpm pin ovens
7. Nine (9) CMB Engineering lacquer spray machines (LSMs) (Inside spray coating)
8. One (1) 3,000 cpm internal bake oven (IBO)
9. One (1) CMB Engineering necking system
10. One (1) Busse palletizer
11. One (1) Busse sorting system

Additional ancillary equipment to support can production lines:

1. Air compressors
2. Vacuum pumps
3. Coolant filter system
4. Two (2) scrap balers
5. One (1) mist control system

Emission Unit #1A Can Production Line 1
Emission Unit #2A Can Production Line 2

6. Process chilled water system
7. Process water heater
8. One (1) wastewater treatment system

Maximum production capacity: 2,520 cans per minute per line. (includes 90% efficiency factor)
Control Equipment: Regenerative Thermal Oxidizer (RTO) and Two (2) Rotary Concentrators for VOC, Filters/Baghouse for PM.

The two production lines will have the capability of producing various styles of beverage cans, ranging in size from 7.5 oz to 16 oz. The main can body will be produced at the facility, the can ends manufacturing will take place elsewhere.

Beverage can body fabrication involves a draw and iron (D&I) process, where cups are punched from aluminum sheet stock and then drawn through dies in the bodymakers to form the desired can body shape. The can bodies are washed and then surface treated to remove drawing lubricant and promote improved adhesion of coatings. A decorative label is then printed on the can body exterior, followed by a protective over-varnish coat. An interior coating is also applied to prevent contact of the beverage with the aluminum can body. The over-varnish and inside spray coatings are both waterborne coatings that comply with applicable federal NSPS applicable to beverage can manufacturing.

Applicable Regulations:
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 60:005, Section 2(2)(ddd) 40 C.F.R. 60.490 through 60.496 (Subpart WW), Standards of Performance for the Beverage Can Surface Coating Industry.
401 KAR 63:020, Potentially hazardous matter or toxic substances.

Precluded Regulations:
401 KAR 51:017, Prevention of significant deterioration of air quality is precluded since the facility has accepted a 90 tpy limit on VOC emissions to preclude major source status and establish a synthetic minor status.
401 KAR 59:225, New miscellaneous metal parts and products surface coating opeations, is precluded since facilty has requested limitations on VOC emissions below a major source threshold and is located in a county designated attainment for ozone.
401 KAR 63:002, Section 2(4)(qqq) 40 C.F.R. 63.3480 through 63.3561, Tables 1 through 7 (Subpart KKKK), National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Cans is precluded since facilty has requested limitations on HAP emissions below a major source threshold.

Comments:
The facility will comply with NSPS Subpart WW through the compliant material option.

Facility uses a permanent total enclosure (PTE) for the inside coating process and has 100% capture efficiency (verified >200 fpm FV by method 204 test in CMN20220001). The decorators and outside varnish application have 95.9% capture efficiency (as verified in CMN20220001). The sole HAP,

Emission Unit #1A Can Production Line 1
Emission Unit #2A Can Production Line 2

formaldehyde is not contained in the coatings but is formed as a byproduct in the flash off ovens (Since this is formed in the ovens it is assumed to have 100% capture to the RTO). All of the processes except for the rim coating and cleaning via IPA (which are considered to have zero capture) are routed to an RTO for control.

The RTO is used in conjunction with two concentrators during normal operation of both lines (scenario 1). There is the capability of running the RTO with one concentrator and having available capacity to operate both lines (scenario 2). For the two preceeding scenarios, during subsequent follow-up tests every 5 years, the source will establish operating parameters for both the RTO and concentrator(s) that shall be maintained during operation. Additionally there is a third scenario where if both concentrators are not operating with the RTO then only one line can run at a time. A separate performance test is not required at this time for the third scenario.

As part of an alternate operating scenario, the facility will have the flexibility to continue process operation while the RTO is out of service for planned maintenance. This shall not exceed 240 hours per 12 month rolling period and emissions shall be calculated separately from regular controlled emissions and added to the monthly total for calculating the 12 month rolling total in the month the shutdown occurs. Worst case scenario modeling has been conducted while operating under this scenario and at rates supplied in the application, the source will be in compliance with 401 KAR 63:020.

Emission Unit #4A, #4B and #4C Hot Water Heaters #1, #2 and #3

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	0.56 lb/MMBtu	401 KAR 59:015, Section 4(1)(c)	AP-42 Chapter 1.4.	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	3.0 lbs/MMBtu	401 KAR 59:015, Section 5(1)	AP-42 Chapter 1.4.	Assumed based upon natural gas combustion

Initial Construction Date: 5/2020

Process Description:
Three Hot Water Heaters, 2.2 MMBtu/hr each. Combusts natural gas only

Applicable Regulation:
401 KAR 59:015, New indirect heat exchangers, 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 63:020, Potentially hazardous matter or toxic substances.

Precluded Regulations:
401 KAR 63:002, Section 2(4)(iiii) 40 C.F.R. 63.7480 through 63.7575, Tables 1 through 13 (Subpart DDDDD), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial,

Emission Unit #4A, #4B and #4C Hot Water Heaters #1, #2 and #3
Commercial, and Institutional Boilers and Process Heaters is precluded since facilty has requested limitations on HAP emissions below a major source threshold. **Comments:** Allowable emissions are calculated based on a total heat input capacity of 6.6 MMBtu/hr. 401 KAR 63:002, Section 2(4)(jjjjj) 40 C.F.R. 63.11193 through 63.11237, Tables 1 through 8 (Subpart JJJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources does not apply because the water heaters are exempt from the requirements since they are included in the exemption list (40 CFR 63.11195(f)).

Miscellaneous Plant Combustion Equipment
Initial Construction Date: 5/2020 **Process Description:** **Emission Unit 3A** Washer-Dryer Oven Line 1, **1.485** MMBtu/hr **Emission Unit 3B** Washer-Dryer Oven Line 2, **1.485** MMBtu/hr **Emission Unit 5A** Pin Oven 1a, **2.5** MMBtu/hr **Emission Unit 5B** Pin Oven 1b, **2.5** MMBtu/hr **Emission Unit 5C** Pin Oven 2a, **2.5** MMBtu/hr **Emission Unit 5D** Pin Oven 2b, **2.5** MMBtu/hr **Emission Unit 6A** Inside Bake Oven 1, **7.2** MMBtu/hr **Emission Unit 6B** Inside Bake Oven 2, **7.2** MMBtu/hr **Emission Unit 7** Kitchen, **0.2** MMBtu/hr **Emission Unit 8** Plant Space Heating, **12.6** MMBtu/hr **Emission Unit 9** RTO, **11.2** MMBtu/hr **Applicable Regulation:** **401 KAR 63:020**, Potentially hazardous matter or toxic substances. **Comments:** Permittee shall keep records of monthly natural gas usage.

Emission Units #10 and #11 Diesel Fuel Fired Emergency Fire Pump Engines				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
NMHC + NO_x	3.0 g/HP-hr	40 CFR 60.4205(c)	AP-42 Chapter 3.3	Purchase of a certified engine.
CO	2.6 g/HP-hr	40 CFR 60.4205(c)	AP-42 Chapter 3.3	Purchase of a certified engine.
PM	0.15 g/HP-hr	40 CFR 60.4205(c)	AP-42 Chapter 3.3	Purchase of a certified engine.

Emission Units #10 and #11 Diesel Fuel Fired Emergency Fire Pump Engines

Initial Construction Date: 5/2020

Process Description:
Emission Unit 10 Diesel Fuel-Fired Fire Pump Engine #1

Description:
Clarke JW6H-UFAD70, 4-Stroke Diesel Fuel-Fired Engine
Displacement: 9 Liters
Maximum Engine Power: 399 HP
Model Year: 2020

Emission Unit 11: Diesel Fuel-Fired Fire Pump Engine #2

Description:
Clarke JW6H-UFAD70, 4-Stroke Diesel Fuel-Fired Engine
Displacement: 9 Liters
Maximum Engine Power: 399 HP
Model Year: 2020

Applicable Regulations:
401 KAR 60:005 Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

401 KAR 63:002 Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

Comments:
Permittee shall keep records of diesel fuel usage. Emissions are calculated using an assumption of 500 hours per year to be conservative and account for emergency operation.

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
01A, 02A	RTO & Two Concentrators	VOC DRE	401 KAR 52:030	Initial and every 5 years	Method 25A	None	98.1%	1537 °F	CMN20220001	8/23/2022
01A, 02A	RTO & One Concentrator	VOC DRE	401 KAR 52:030	Initial and every 5 years	Method 25A	None	97.1%	1537 °F	CMN20220001	8/23/2022
01A, 02A	RTO & Concentrators Permanent Total Enclsoure (PTE)	VOC Capture	401 KAR 52:030	Initial	Method 204	None	100% PTE verified	>200 fpm facial velocity	CMN20220001	8/23/2022
01A, 02A	RTO, non-PTE portion	VOC Capture	401 KAR 52:030	Initial	Method 204	None	95.9%	N/A	CMN20220001	8/23/2022

Footnotes:

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
90 tpy of VOC emissions	To preclude 401 KAR 52:020 and 401 KAR 51:017	Source-wide
9.0 tpy of individual HAP emissions	401 KAR 52:030	Source-wide
22.5 tpy of combined HAP emissions	401 KAR 52:030	Source-wide
112.5 million cans production per month per line	401 KAR 52:030	01A, 02A

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:010, New process operations.	01A, 02A
401 KAR 59:015, New indirect heat exchangers	04A, 04B, 04C
401 KAR 60:005, Section 2(2)(ddd) 40 C.F.R. 60.490 through 60.496 (Subpart WW), Standards of Performance for the Beverage Can Surface Coating Industry.	01A, 02A
401 KAR 60:005 Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.	10, 11
401 KAR 63:002 Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.	10, 11
401 KAR 63:020, Potentially hazardous matter or toxic substances.	01A, 02A, 3A, 3B, 4 (A-C), 5 (A-D), 6A, 6B, 7-9

Table C - Summary of Precluded Regulations:

Precluded Regulations	Emission Unit
401 KAR 51:017, Prevention of significant deterioration of air quality	
401 KAR 59:225, New miscellaneous metal parts and products surface coating opeations,	01A, 02A
401 KAR 63:002, Section 2(4)(qqq) 40 C.F.R. 63.3480 through 63.3561, Tables 1 through 7 (Subpart KKKK), National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Cans	01A, 02A
401 KAR 63:002, Section 2(4)(iiii) 40 C.F.R. 63.7480 through 63.7575, Tables 1 through 13 (Subpart DDDDD), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	04A, 04B, 04C

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 AERMOD on March 18, 2020 of potentially hazardous matter or toxic substances (Formaldehyde) 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-20-012	Initial	APE20200001	3/19/2020	5/17/2020	Initial construction permit	Syn Minor
F-20-012 R1	Minor Revision	APE20230002	8/31/2023	3/1/2024	Update EU04 to reflect 3 water heaters. Add EU10 & EU11 previously constructed	N/A

SECTION 6 – PERMIT APPLICATION HISTORY

N/A

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 or Permanent Total Enclosure
SO_2 – Sulfur Dioxide
TF – Total Fluoride (Particulate & Gaseous)
VOC – Volatile Organic Compounds