



west virginia department of environmental protection

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**ENGINEERING EVALUATION / FACT SHEET**

**BACKGROUND INFORMATION**

Application No.: R13-2410D  
Plant ID No.: 009-00012  
Applicant: Ardagh Metal Packaging USA, Inc.  
Facility Name: Weirton Facility  
Location: Brooke County  
SIC Code: 3411  
Application Type: Class II Administrative Update  
Received Date: June 8, 2015  
Engineer Assigned: Caraline Griffith  
Fee Amount: \$300.00  
Date Received: June 10, 2015  
Complete Date: July 21, 2015  
Due Date: September 21, 2015  
Applicant Ad Date: June 24, 2015  
Newspaper: *The Weirton Daily Times*  
UTM's: Easting: 531.834 km Northing: 4,470.823 km Zone: 17  
Description: Update permit to reflect variability of coating materials and remove the "Product Storage" column in Table 4.1.1; update permit for new HAPs; request lower temperature requirement for Thermal Oxidizer 3C; increase VOC emission limits for the bulk storage tanks; and update the permit to reflect the most recent VOC Capture and Destruction Efficiency testing.

**SUMMARY**

With the submittal of the Class II Administrative Update request (R13-2410C), Ardagh Metal Packaging USA, Inc. requests that:

- Due to the variability of coating materials used onsite, a request is being made to remove the column in Table 4.1.1 of permit R13-2410C that reads Product Storage be removed or that a footnote be added stating: "The above table is a snapshot of coating storage at permit approval time. The permittee is allowed to change coating storage as long as the requirements listed in the above table and sections 4.1.8, 4.1.9, and 4.1.10 are met."

- In accordance with section 4.1.8, notifications were previously submitted for the use of HAPs Cresol (CAS# 1319223) and phenol (CAS# 108-95-2), and replace Butyl Carbitol (CAS# 112345) and Butyl Cellsolve Acetate (CAS# 112072) with 'Glycol Ethers.' It is requested that these two HAPs be added to the table listed in Section 4.1.8.
- The minimum combustion chamber temperature of thermal oxidizer #3 (C3) be changed to 1,275°F from 1,390°F. See R13-2410D, section 4.1.13.
- Update the VOC Capture and Destruction efficiency testing to reflect that the last conducted test was done by Ardagh on February 27, 2014.
- Increase in VOC tank emissions for tanks 15S and 16S with 30S staying the same.

### **DESCRIPTION OF PROCESS**

The following description, with a few changes/additions, etc., comes from the permit application for R13-2410D (Attachment G):

The Ardagh facility, located in Weirton, West Virginia, is a metal coating plant, specializing in processed foods. The operating lines (Line No. 1 through 4) include the coating operation and driving operations. Uncoated sheets of metal, varying in size are fed through the line. The sheets are coated, dried, and restacked. Coating Line No. 4 operates in line with the existing Litho Coating Line. The Litho Coating Line is a printer, which prints on the sheet metal prior to the coating being applied.

The design capacity of each coating line is approximately 7,300 sheets per hour (7,500 sheets per hour for Coating Lines No. 3 and 4). These sheets are coated with the proper coating (interior and exterior) and quantity according to the customer specifications. From the coating equipment, the sheets are roller fed to the drying oven. A permit modification was submitted in 2008 for the installation of a permanent total enclosure (PTE) around Lines 1 through 4 in order to obtain 100% capture efficiency for volatile organic compound (VOC) and hazardous air pollutant emissions. The PTE encloses the area from the coating machine to the drying oven. The Litho Line is not located with the PTE.

All of the thermal oxidizers are fueled by natural gas. Capture and destruction efficiency testing was initially conducted October 2-4, 2007 to verify the effectiveness of the PTE and to confirm the destruction efficiency of the thermal oxidizers. The test confirmed that the PTE met the USEPA Method 204 criteria and 100% capture efficiency was achieved. In addition, destruction efficiencies and minimum combustion chamber temperatures for the thermal oxidizers were determined. The oxidizers were retested in December 2011 following the May 2011 Title V renewal. Regulation 13 Permit R13-2410C and Title V permit R30-00900001202006 require that the temperature of the combustion chamber of C1, associated with Coating Lines No. 1 and 2, be a minimum of 1400°F, and that a control efficiency of 95% be

achieved. The temperature of the combustion chamber of C2, associated with the Coating Line #3, is a minimum of 1350°F, and a control efficiency of 98% is required. The temperature of the combustion chamber of control device C3, associated with Coating Line No. 4, is currently a minimum of 1390°F, a control efficiency of 99% is required. The facility was able to achieve the same control efficiency at a combustion chamber temperature of 1275°F., and is requesting a permit amendment as a result. Oxidizer C3 was tested on March 11, 2014.

Emission points for C1 are identified as 4E (Preheat Exhaust Stack) and 5E (Heat Trunk Exhaust Stack) for Coating Line No. 1 and 6E (Preheat Exhaust Stack) and 7E (Heat Trunk Exhaust Stack) for Coating Line No. 2. Emission points for C2 are identified as 23E and 24E. Emission points for C3 are identified as 28E and 29E. The exhaust for the Litho Line is identified as 31E and does not have a control device.

Chemical coating arrive outside in drums, totes or via bulk delivery, and is used in large quantities. Below is an updated list of coatings in use at the facility. Some coatings listed in the coating use summary table in Section 4.1.7 of the Title V permit are obsolete, while new coatings have been added. Three (3) aboveground storage tanks, identified as Tank No. 1 (EU 15S), Tank No. 2 (EU 16S), and Tank No. 3 (EU 30S) contain various coatings (EU 15S and EU 16S) and Glycol Ether (EU 30S).

The facility utilizes a maximum of 16,500 gallons per year of cleaning solvents for all coating lines and the Litho Line. Cleaning operations are identified as EU 32S. A conservative release rate of 50% is assumed based on material balance performed by the facility.

**Table 1: Bulk Storage and Cleaning Solvents.**

Equipment Description	Stored Material or Solvent Used	Emission Unit ID	Emission Point ID
Bulk Tank No. 1	PPG4348807	15S	8E
Bulk Tank No. 2	96X069A.	16S	9E
Bulk Tank No. 3	Glycol Ether (EB) or Similar	30S	30E
Cleaning Solvents	4212-1 Washup Solvent; Eastman MPK; IPA Anhydrous; UV Wash 5700; and General Press Wash	32S	32E

**SITE INSPECTION**

The writer did not conduct an inspection of the facility. A full on-site inspection was performed by Michael Wade on July 11, 2013. The facility was determined to be in compliance and was given the status code of 30.

## **CAPTURE AND DESTRUCTION TESTING**

Capture and destruction efficiency testing was conducted on February 27, 2014 by Ardagh Metal Packaging USA, Inc. to verify the effectiveness of the PTE and to confirm the destruction efficiency of the control devices/thermal oxidizers.

Test results given below confirm that at a combustion chamber temperature of 1,275°F the 98% control efficiency required by permit R13-2410C, section 4.1.6, is exceeded.

**Table 2: Test Results (Collected 02/27/14) Confirm Destruction Efficiency of Thermal Oxidizer 3C exceeds Permit Requirement of 98%.**

<b>10/3/07 Test Run #</b>	<b>Avg. Combustion Chamber Temp. (°F)</b>	<b>% Destruction Efficiency (lb/hr basis)</b>
1	1273	99.9
2	1275	99.99
3	1273	99.9
Average	1273.67	99.9

Ardagh's request to lower the minimum temperature of the combustion chamber for Thermal Oxidizer 3C to 1,275°F (from 1,390°F) seems reasonable to the writer.

## **ESTIMATE OF EMISSIONS**

The writer reviewed Ardagh's emission calculations (see Attachment N of the permit application) and believes the calculations and the assumptions upon which they are based to be reasonable.

Total VOC emissions after change in coating products of Ardagh's Weirton facility are summarized below:

	R13-2410D (New)		R13-2410C (Old)		Delta (New - Old)	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Tanks	NA	0.34	NA	0.07	NA	0.27
<b>Total</b>	<b>NA</b>	<b>0.34</b>	<b>NA</b>	<b>0.07</b>	<b>NA</b>	<b>0.27</b>

This increase in VOC emissions do not exceed the limits set forth in 40CSR30.

Speciated annual Hazardous Air Pollutant (HAP) emissions are listed below:

HAPs	Coatings (lb/yr)	Pastes, Lubes & Thinners (lb/yr)	Cleaning (lb/yr)	Thermal Oxidizers (lb/yr)	Printing (lb/yr)	Total (tpy)		Delta (New - Old)
						R13- 2410D	R13- 2410C	
Ethylbenzene	1,705	32	0	0	0	0.87	0.87	0.00
Formaldehyde	180	0	0	18	0	0.09	0.09	0.00
Ethylene Glycol	0	173	0	0	0	0.09	0.09	0.00
Isophorone	1,377	74	0	0	0	0.73	0.73	0.00
MIK	1,195	13	14,020	0	0	7.62	7.62	0.00
Toluene	4,623	3	0	0	40	2.34	2.34	0.00
Naphthalene	287	0	0	0	0	0.15	0.15	0.00
Butyl Carbitol	102	0	0	0	0	0.05	0.05	0.00
BCA	1,595	0	0	0	0	0.80	0.80	0.00
Cumene	565	2	0	0	0	0.28	0.28	0.00
Xylene	4,533	159	0	0	0	2.35	2.35	0.00
Hexane	1	0	0	426	0	0.22	0.22	0.00
Methanol	40	0	0	0	0	0.02	0.02	0.00
Methyl Carbitol	1	0	0	0	0	0.00	0.00	0.00
Mg Compounds	0	0	0	0	820	0.41	0.41	0.00
Glycol Ethers	2,506	0	0	0	0	1.253	0	+1.253
						<b>17.273</b>	<b>15.99</b>	<b>+1.253</b>

## REGULATORY APPLICABILITY

No change in regulatory applicability. According to R13-2410C: The facility to be permitted under this application is subject to the following state rules:

**45CSR6:** To Prevent and Control Air pollution From Combustion of Refuse.

45CSR6 limits the particulate matter to be discharged from any incinerator into the open air in excess of the quantity determined by use of the following formula:

$$\text{Emissions (lb/hr)} = F \times \text{Incinerator Capacity (tons/hour)}$$

Where,  $F = 5.43$  for an incinerator capacity less than 15,000 lb/hr or 2.72 for an incinerator capacity of 15,000 lb/hr or greater. The three incinerators will burn a maximum of 520 lb/hr, 264 lb/hr and 212 lb/hr of VOCs (well under 15,000 lb/hr) respectively. Therefore the allowable emissions from each incinerator are:

$$5.43 \times (520 \text{ lb/hr}) / (2000 \text{ lb/ton}) = 1.41 \text{ lb/hr}$$

$$5.43 \times (264 \text{ lb/hr}) / (2000 \text{ lb/ton}) = 0.72 \text{ lb/hr}$$

$$5.43 \times (212 \text{ lb/hr}) / (2000 \text{ lb/ton}) = 0.58 \text{ lb/hr}$$

Particulate Matter emissions resulting from the combustion of the VOCs in all three thermal oxidizers combined were reported in the application to be 0.21 lb/hr. Therefore the emissions limitations in 45CSR6 should be met by the control devices.

**45CSR13:** Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation.

R13-2410B - Ardagh (formerly Impress) voluntarily requested this permit in order to become a synthetic minor for the MACT (Subpart KKKK). Additionally, the requested changes have the potential to increase VOC emissions by more than 144 pounds per day (though annual emissions will decline).

**45CSR30:** Requirements for Operating Permits.

The facility is subject to the requirements of 45CSR30 because the existing facility is a major source (emits > 100 tpy of VOCs) as defined in 45CSR30 and has an existing Title V permit (R30-00900012-1996).

It should be noted that the facility is not subject to 40 CFR 60 subpart TT because that subpart applies to "Metal Coil Surface Coating". Subpart TT defines "Metal coil surface coating operation" as "the application system used to apply an organic coating to the surface of any continuous metal strip with thickness of 0.15

millimeter or more that is packaged in a roll or coil.” Since the coils received by NPPCC are sheared before coating they do not constitute a “continuous metal strip.”

Additionally, due to the issuance of R13-2410B, the facility is not subject to 40 CFR 63 Subpart KKKK: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Cans, since the facility is now a minor source of HAPs.

### TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

As can be seen in the estimate of emissions above, several non-criteria regulated pollutants will be emitted from this facility. However, as can also be seen above none of these pollutants will be emitted in quantities triggering any requirements under the MACT (40 CFR 63 Subpart KKKK). Although the facility emits formaldehyde, the emission rate of 198 pounds per year is well under the 45CSR27 limit of 1000 pounds per year. Therefore BAT is not required.

The new HAPs found in two (2) of the four (4) coating are expected to be emitted after controls in very small quantities: Hexane - 1lb/yr; Methanol - 40 lb/yr; and Methyl Carbitol 1 lb/yr.

### AIR QUALITY IMPACT ANALYSIS

Since the modification is not subject to 45CSR14 and since the main pollutant of concern is VOCs, no modeling was performed.

### MONITORING OF OPERATIONS

No change in monitoring. According to R13-2410C: The permittee will be required to perform the following monitoring:

- \* The permittee shall maintain records of the amount and type of coatings, cleaners, pastes and thinners used and VOC and HAP emissions for the coating lines. VOC and HAP emissions shall be calculated using the minimum required control and capture efficiencies as outlined in this permit. Said records shall be maintained on a monthly and 12 month rolling total basis.
- \* The permittee shall install, calibrate, maintain, and continuously operate a device(s) to measure and record each of the pollution control devices' combustion chamber temperatures. All temperature records shall be retained on-site for a period of at least five (5) years and shall be made available to the Secretary or his duly authorized representative upon request. The device for C2 shall have an accuracy of  $\pm 2.5$  °C ( $\pm 4.5$  °F) or  $\pm 0.75$  percent of the temperature being measured expressed in degree Celsius. The devices for C1 and C3 shall be certified by the manufacturer to be accurate within plus or minus

1% in degrees Fahrenheit.

- \* The permittee shall maintain records of the amount of natural gas burned in the thermal oxidizers. Said records shall be maintained on a monthly and 12 month rolling total basis.

**RECOMMENDATION TO DIRECTOR**

Because the application indicates that compliance with all applicable regulations will be achieved, the writer recommends that permit R13-2410D be granted to Ardagh Metal Packaging USA, Inc.

  
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Caraline Griffith  
Permit Engineer

7/27/15  
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DATE