



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2774B
Plant ID No.: 107-00155
Applicant: Precision Coatings LLC
Facility Name: Parkersburg
Location: Parkersburg, Wood County
NAICS Code: 332812
Application Type: Modification
Received Date: May 8, 2014
Engineer Assigned: Laura Jennings
Fee Amount: \$1,000
Date Received: May 15, 2014
Complete Date: June 8, 2014
Due Date: September 6, 2014
Applicant Ad Date: May 21, 2014
Newspaper: *The News and Sentinel*
UTM's: Easting: 453.869 km Northing: 4345.876 km Zone: 17
Description: Precision Coatings is seeking a modification to add additional throughput and more accurately reflect the way the coating operation is done. Paint areas [1S] and [3S] will now be noted as paint area [1S]. Precision Coatings is looking to increase VOCs by 35.62 TPY and PM emissions by 7.91 TPY for the paint area and abrasive blast zone.

DESCRIPTION OF PROCESS

New steel to be surface treated will be unloaded in front of building. This is where it will stay until it is time for processing. Material will be transported to the abrasive blasting zone where it will be blasted with garnet or black beauty according to the terms on the agreed purchase order. The material will then be moved to the paint area or be packaged to ship. Carbon steel items prepared in the blasting area could be process piping, structural steel items, duct or breaching, vessels and furnace sections.

Carbon steel items prepared for paint are coated with a variety of spray equipment, air,

airless and air-assisted airless and will use HVLP or compliant paint guns whenever possible. Once items have been coated they will sit in the current position until such time has passed that they can be loaded without marring of the newly painted surface.

Emission Units Table:

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type and Date of Change	Control Device
1S	1E/2E	Paint Area	2014	n/a	Modification	1C/2C
2S	3E	Abrasive Blast Area	2008	n/a	n/a	3C

SITE INSPECTION

A site inspection is not needed for this modification. The facility is an existing facility and the writer was previously at the site during the development of the initial construction application R13-2774.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The emissions were calculated using material balances and spreadsheets developed by the West Virginia Department of Environmental Protection, Small Business Assistance Program. The annual emissions are taken from the Small Business Assistance Program spreadsheets. A transfer efficiency of 45% was used for the calculations. The annual emissions are based on the coating usage, VOC content, solids content, and the HAP content.

The hourly emissions are based on a maximum painter output of 60 gallons/hour and is the worst case emission rate for each of the pollutants.

Blasting Operations Calculations were based on an emission factor from AP42, Section 13.2.6 for the uncontrolled particulate matter.

Control Devices [1C and 2C] in the painting area are high efficiency filters with a minimum collection efficiency greater than 99% in use during the coating operation.

Control Device [3C] is the abrasive blast overflow room that was assigned a control efficiency of 80% according to guidance from DAQ's material handling general permit.

All calculations were reviewed by the writer.

Emissions Summary Table:

Emission Point ID	Emission Unit ID	Control Device ID	Regulated Pollutant	Maximum Potential Uncontrolled Emissions		Maximum Potential Controlled Emissions	
				lbs/hr	tpy	lbs/hr	tpy
1E/2E	1S	1C/2C	Total Particulate Matter	162.08	20.32	16.21	2.03
			PM ₁₀	77.18	9.68	7.72	0.97
			VOC	405.59	54.12	405.59	54.12
			Xylene	365.67	8.44	365.67	8.44
			Toluene	405.59	2.48	405.59	2.48
			Styrene	171.91	0.72	171.91	0.72
			Phenol	25.00	0.06	25.00	0.06
			Napthalene	25.74	0.73	25.74	0.73
			MIBK	401.58	4.42	401.58	4.42
			Methanol	96.88	1.69	96.88	1.69
			Ethylbenzene	55.95	3.30	55.95	3.30
			EP Glycol Ether	68.346	0.06	68.346	0.06
			DM Glycol Ether	1.36	0.01	1.36	0.01
			Dibutyl Phthalate	12.87	0.21	12.87	0.21
			Cumene	22.31	0.12	22.31	0.12
			Cobalt Neodecanoate	0.93	0.01	0.93	0.01
			Cobalt 2-ethylhexanoate	0.93	0.01	0.93	0.01
Hexamethyl Diisocyanate	1.73	0.23	1.73	0.23			
Aggregated HAPS	n/a	22.48	n/a	22.48			
3E	2S	3C	Total Particulate Matter	59.40	61.78	11.88	12.36
			PM ₁₀	28.29	29.42	28.29	29.42

REGULATORY APPLICABILITY

The following state and federal regulations were reviewed for applicability to the modifications associated with this facility:

45CSR7 *“To Prevent and Control Particulate Matter Air Pollution From Manufacturing Processes and Associated Operations”*

The facility continues to be subject to 45CSR7. The review is a result of the increased PM emissions in both the painting area and the abrasive blasting area. Section 4.1.1. limits the particulate matter emissions in Table 45-7A by source operations type. The proposed facility is a type ‘a’ emission source defined by 45CSR7-2.39.

The amount of proposed process material coated per hour is 120,000 lb/hr as listed in the emission unit data sheet. The maximum emission rate specified in Table 45-7a is 33.8 lbs/hr. The controlled total particulate matter emissions from the Painting Area [1S] are 16.21 lbs/hr which is below the limit, indicating compliance.

The amount of proposed process material charged per hour in the Abrasive Blast Booth is 120,000 pounds per hour as listed in the emission unit data sheet. The maximum emission rate specified in Table 45-7a is 33.8 lbs/hr. The controlled total particulate matter emissions from the Abrasive Blast Booth are 11.88 lbs/hr and is below this limit, indicating compliance.

45CSR13 *“Permits for construction, modification, relocation and operation of stationary sources of air pollutants, notification requirements, temporary permits, general permits, and procedures for evaluation.”*

The increase in emissions associated with this application meet the definition of a “modification”. The applicant has demonstrated compliance with the requirements because they have submitted a complete permit application, they have paid the application fee, and they have posted a Class I legal advertisement in *The Parkersburg News and Sentinel* on May 21, 2014.

45CSR30 *“Requirements for Operating Permits”*

The facility is not subject to 45CSR30 because the facility wide emissions continue to be below the major source thresholds defined in 2.26. For HAPs, the thresholds are 10 tpy or more of any hazardous air pollutant or 25 tpy or more of any such combination of hazardous air pollutants. The potential emissions of the individual hazardous air pollutants are identified in the emissions summary table. The potential emissions of the aggregated hazardous air pollutants is 22.48 tpy. For criteria pollutants, the threshold is 100 tpy. The potential VOC emissions are below the 100 tpy threshold.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There is one new hazardous air pollutant associated with this application - Hexamethylene Diisocyanate.

Hexamethylene diisocyanate is used as a polymerizing agent in polyurethane paints and coatings. Acute (short-term) exposure to high concentrations of hexamethylene diisocyanate in humans can cause pulmonary edema, coughing, and shortness of breath. Hexamethylene diisocyanate is also extremely irritating to the eyes, nose, and throat. Human studies have suggested that chronic (long-term) exposure to hexamethylene diisocyanate may cause chronic lung problems. Animal studies have reported respiratory effects from chronic inhalation exposure and skin irritation and sensitization from dermal exposure to hexamethylene diisocyanate. No information is available on the reproductive, developmental, or carcinogenic effects of hexamethylene diisocyanate in humans. EPA has not classified hexamethylene diisocyanate for carcinogenicity. One of the main uses of hexamethylene diisocyanate is as a polymerizing agent in polyurethane spray paint formulations and coatings. Hexamethylene diisocyanate is used in the preparation of dental materials, contact lenses, and medical adsorbents.

AIR QUALITY IMPACT ANALYSIS

The proposed facility will not be a major source as defined by 45CSR14. Based on the nature of the emissions and the annual emission rate, no air quality impact analysis was performed.

MONITORING OF OPERATIONS

There are no changes to the monitoring requirements as a result of this modification application.

CHANGES TO PERMIT R13-2274A

- General changes relating to permit versions, correction of EPA address, etc.
- 1.0 Emission Unit Table updated
- 4.1.1 - updated the emission limits as described in this evaluation
- 4.1.2 - removed Methyl Ethyl Ketone (not a HAP) and added Hexamethyl Diisocyanate
- Updated the maximum usages in 4.1.5, 4.1.6, and 4.1.7 per the table below and taken from the emission calculations provided in the application.

Permit Requirement	Material	Current Usage	New Usage
4.1.4	Coating	11,800 gallons/yr	30,063 gallons/yr
4.1.5	Solvent	700 gallons/yr	277 gallons/yr
4.1.6	Thinners	350 gallons/yr	2,560 gallons/yr

- 4.1.8 - updated the maximum painter output from 44 gal/hr to 60 gal/hr as provided in the application
- 4.1.4, 4.1.9, 4.1.10, and 4.4.5 - updated the references in accordance with the updated to the emissions unit table in 1.0.
- 4.1.11 - updated the maximum rate of abrasive blasting from 1,100 lb/hr to 2,200 lb/hr as taken from the emission calculations provided in the application.
- 4.1.12 0 - updated the maximum amount of abrasive blasting material to be used from 2,288,000 lb/yr to 4,576,000 lb/yr as taken from the emission calculations provided in the application.

RECOMMENDATION TO DIRECTOR

The writer recommends that modification permit R13-2774B be granted to Precision Coatings, LLC, Parkersburg Facility 107-00155 located in Wood County, WV. Based on the information provided in this application, the permittee will be in compliance with the applicable state and federal regulations.

Laura M. Jennings
Permit Engineer

Date