

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection**

P102768278

FACILITY: DDP Specialty Electronic Materials US, LLC		SRN / ID: P1027
LOCATION: 3400 S. Saginaw Rd Unit 96, MIDLAND		DISTRICT: Bay City
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Jennifer Kraut , Environmental Specialist		ACTIVITY DATE: 07/11/2023
STAFF: Kathy Brewer	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: EUR290 100 bldg. Urethanes/Preprimer		
RESOLVED COMPLAINTS:		

On July 11, 2023, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), conducted an inspection of DDP Specialty Electronics Materials US, LLC (DDP) Urethanes and Prepolymer Process (R290 located in 100 Building within the Dow iPark, Midland, Michigan. Jennifer Kraut of DDP accompanied me on the inspection.

Per a September 15, 2019 Supplemental NOCS MACT HHHHH submittal, this emission unit is subject to the NESHAP for Miscellaneous Coating Manufacturing in 40 CFR Part 63, Subpart HHHHH, 40 CFR Part 63 Subpart FFFF (MON MACT), and 40 CFR Part 63 Subpart EEEE (OLD MACT) (OLD MACT).

The EURULE290 100 Building emissions are reported to MAERS within the EURULE290 MAERS Emission unit. 3618 lbs of VOC were reported as emitted in 2022 for all EURULE290 emission units associated with the Midland, Michigan DDP SRN P1027 facility. Carbon adsorbtion is listed as one of the control devices for the MAERS EURULE290 emission unit.

We walked through 100 Building production and material handling areas, observed air pollution control devices and viewed several operation status screens. On site records of production and associated emission calculations were reviewed.

At the time of the inspection the facility was conducting emission testing of the carbon beds to demonstrate compliance with 40 CFR Part 63 Subpart HHHHH.

The facility appeared to be in compliance with Rule 290 and applicable MACT requirements.

Records

October 2022, January 2023, and April 2023

Emission records

Carbon bed operations

ROP Deviation Reports March and September 2022, March 2023

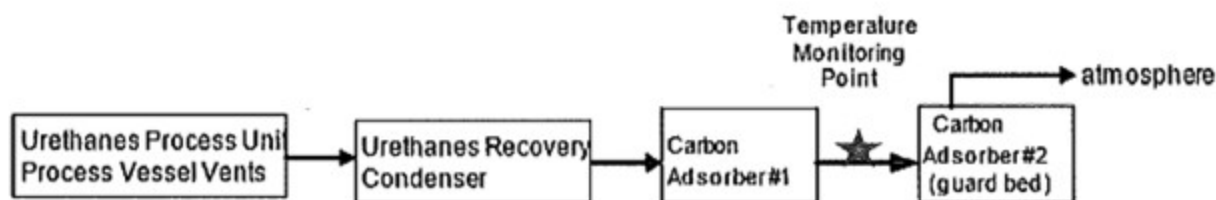
MACT HHHHH NOCs September 2019, March 2021

MACT HHHHH Semi annual report March 2023

Description

The EURULE290 process produces polyurethane windshield adhesives. The process air contaminants are vented to two carbon pods in series.

Urethanes/Prepolymer Carbon Adsorption System Block Flow Diagram



The process is a batch process. EURULE290 100 Building process shares the same packaging line and some control devices and materials handling with EU04. The Urethanes recovery condenser is used to recover material for its heating value. The primary HAP recovered is toluene. The recovered material is routed to the on-site hazardous waste incinerator owned by Dow (SRN A4033).

This process is subject to the NESHAP for Miscellaneous Coating Manufacturing in 40 CFR Part 63, Subpart HHHHH. Storage tanks are subject to 40 CFR Part 63 Subpart FFFF (MON MACT). Drums and totes are subject to 40 CFR Part 63 Subpart EEEE (OLD MACT) (OLD MACT).

The following is from the 40 CFR Part 63 Subpart HHHHH emission test plan:

....The urethanes/prepolymer process consists of two areas: reactor and mixers. The reactor (R-2310) is used to produce the pre-polymer intermediates which are used as the raw material for urethane production. The pre-polymers are pumped to one of four mixers...where they are mixed with various ratios of carbon black, clay, and small feed raw materials to produce a variety of urethane products. The urethane is then pumped into 55 gallon drums.

Process exhaust that vents to carbon beds are controlled by two carbon adsorption beds in series - 9156A Carbon Pod followed by 9156B Carbon Pod. For Rule 290 emissions and for MACT HHHHH, 9156B is considered a "guard pod". During the July 11, 2023 stack testing compliance >95% THC removal was occurring at the exhaust of 9156A Carbon Pod. This demonstrated compliance with the MACT HHHHH 95% OHAP removal efficiency.

During the inspection, process and storage vessels were venting to carbon treatment.

Emissions

Emission units utilizing a Rule 290 air permitting exemption are required to track monthly emissions for applicable air contaminants. Emission calculations including monthly production information, calculated estimates of generated air contaminants generated from production, and air pollution control device efficiencies were reviewed.

The facility also monitors carbon bed temperature. The engineering calculations assumed a worse case adsorption rate at 120 F.

Records for October 2022, January 2023, and April 2023 were reviewed on site.

The facility tracks the process emissions that are sent to the carbon beds, the associated carbon adsorption capacity consumed, and the associated carbon adsorption capacity remaining. The facility assumes a 90% control efficiency for acetone and a 95% control efficiency for the remaining volatiles.

Carbon consumption calculations are based on engineering calculations for process steps of each product. An Adsorbant Use Rate from carbon supplier Calgon is used for the pounds of each chemical adsorbed per pound of carbon. Each carbon canister contains 1,800 pounds of carbon. When a maximum of 1,700

pounds of carbon has been consumed in the first carbon bed canister, the first carbon bed is replaced. Details can be found in the March 15, 2021 MACT HHHHH Supplemental Notification of Compliance.

The modeling included in the November 17, 2016 MACT HHHHH Notice of Compliance Status stated that the highest concentration organic was N-Methylpyrrolidone. Other constituents in the process exhaust vented to the carbon adsorption system include Methanol, Hexamethylene Diisocyanate, 2,2-Dimorpholinodiethylether (DMDEE), and Toluene with trace amounts of benzene

Review of production and emission records indicate the facility is in compliance with the allowed emission limits.

Pollutant Group	R290 Emission Limit	October 2022 Emissions LBS	January 2023 Emissions LBS	April 2023 Emissions LBS
Total Emissions all ITSL	<500 lbs	181.97	140.6	155.7
Total Emissions ISTL, IRSL < 2.0	<10 lbs	0.82	0.91	0.985
Total Uncontrolled Emissions Carcinogenic	<10 lbs	0	0	0

The last change out for carbon 9156A pod occurred on June 16, 2023. Recent carbon change out information is below.

Date	Carbon Consumed (lb)	Carbon Available (lb)
9/27/2022	1550.5	149.5
11/3/2022	1555.9	144.1
12/8/2022	1478.69	221.31

1/21/2023	1518.74	181.26
2/19/2023	1190.96	509.04
3/27/2023	1321.59	378.41
5/7/2023	1525.32	174.68
6/16/2023	1512.04	187.96

The facility also tracks the 9156A carbon pod exhaust temperature per the MACT HHHHH Notice of Compliance. The carbon pods exhaust temperature is to be ≤ 120 F to meet adsorption rate estimates. The temperature transmitter (TT) is checked for functionality once per year. TT9156-02 was last checked on August 29, 2022.

Operations monitoring information graphing carbon pod exhaust temperatures, consumed carbon, and available carbon are attached for June 2023 and July 11 and 12, 2023 are attached.

Urethane operations screens and production control logic for process vents sent to Carbon 9156A were reviewed. A screenshot of the process status during the inspection and stack testing is attached.

Reporting

Semi-annual deviation reports and certifications did not contain any deviations for EURULE290 100 Building (Automotive Urethanes and Prepolymers)

MACT FFFF and MACT HHHHH did not contain any deviations for EURULE290 100 Building (Automotive Urethanes and Prepolymers)

NAME Kathy Bauer DATE 9/11/2023 SUPERVISOR Chris Kane