

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

A403360296

FACILITY: The Dow Chemical Company U.S.A., Midland		SRN / ID: A4033
LOCATION: 1790 Building, MIDLAND		DISTRICT: Bay City
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Amanda Karapas , Air Specialist		ACTIVITY DATE: 09/28/2021
STAFF: Kathy Brewer	COMPLIANCE STATUS: Compliance	
SUBJECT: EU1353 on site inspection and records review portion of FCE.		SOURCE CLASS: MEGASITE
RESOLVED COMPLAINTS:		

EU1353 was permitted by PTI #87-17C issued on January 26, 2021 and revised on February 8, 2021 for the silicone sealant and adhesives facility at Dow Chemical Midland SRN A4033.

This emission unit is subject to the requirements of 40 CFR Part 63, Subparts A, UU, EEEE, and FFFF.

Emissions for 2020 reported to MAERS were 1021.33 pounds VOC

During the pre-inspection September 23, 2021 meeting the process flow diagram, vent locations, control devices and emission calculations were reviewed. During the September 28, 2021 on site visit the ROP required emission control and metering devices, vents, and real time process screens were viewed.

At the time of the inspection the facility appeared to be in compliance with the requirements of the EU1353 ROP conditions.

Site Records Review

EU1353

- Process status
- E-3213B chilled water condenser discharge Temperature
- DC3211 dust collector dP
- Example calculations for February 2021 for VOC and PM10, PM2.5 emissions

AQD File Review

MAERS emissions

ROP Semi annual Deviation reports March 2020, September 2020, March 2021, Sept 2021

MACT Reports Subpart FFFF, September 2019, March 2020, Sept 2020, March 2021.

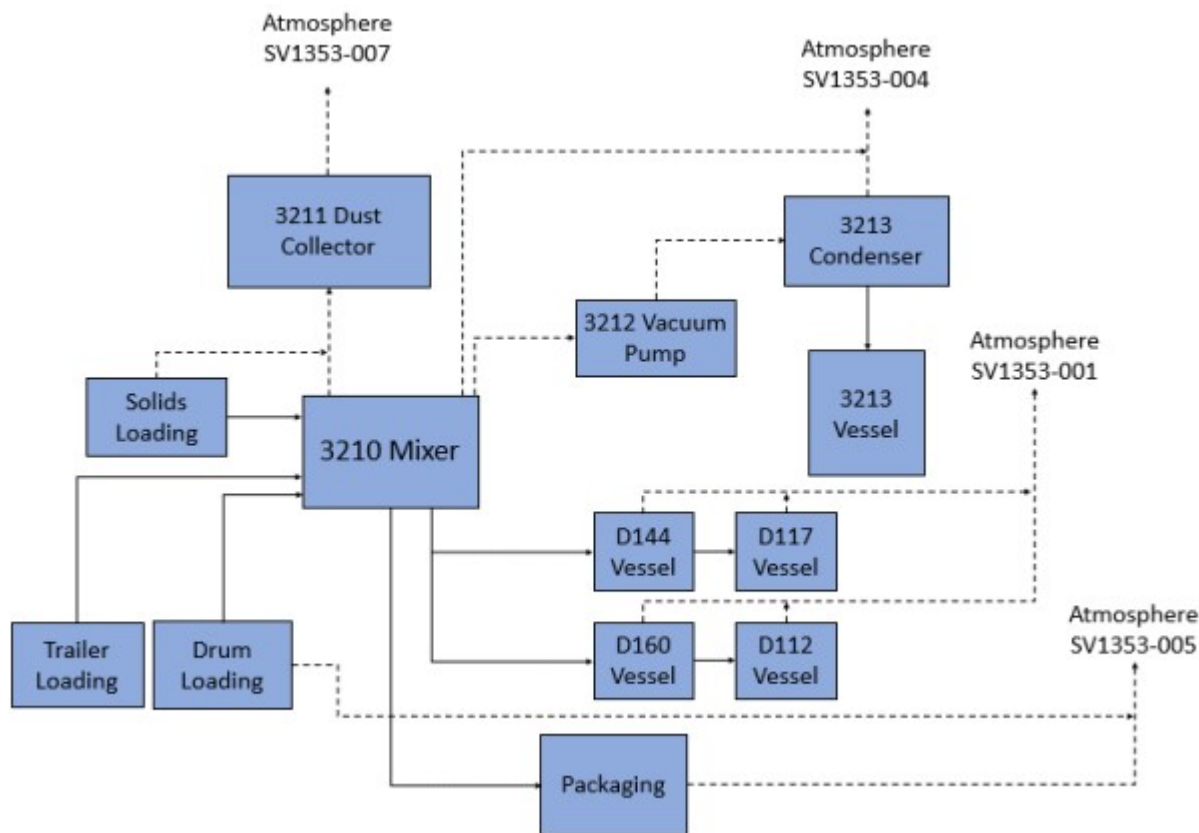
PTI 87-17 series and associated EVAL forms

Description:

3210 Mixer is in 1353 building, which is a batch process. This batch manufacturing process consists of a mixer, a solids loader, a drum loader, a drum off station, a vacuum pump, a dust collector, and a chilled water condenser. Typical production includes loading the mixer, reacting/heating/mixing the raw materials, removing byproducts, and packaging the finished product. Specific process steps are dependent on the product being made. Batch manufacturing can also include the use of vacuum via vacuum pumps, which emit through the chilled condenser. In addition, solvent cleanouts may be used between specific products, depending on their

compatibility. Vessels D112, D117, D144, and D160 vent out SV1353-001, but are exempt from permitting per Rule 284(2)(i).

EU1353 includes a dust collector for solids handling (SV1353-007) and a chilled water condenser (SV1353-004) for emissions of volatiles from charging and process operations.



The following equipment and specified activities operate under exemptions.

Exempt Equipment or Activity	Description	Exemption Rule
Routine maintenance	Filter changes, for example	285(2)(a)
Process sampling	Testing, inspection, etc.	283(2)(f)
Vessels D112, D117, D144, and D160	Storage/blending vessels	284(2)(i)

The EU1353 process was originally considered to be subject to the miscellaneous coatings MACT 40 CFR Part 63 Subpart HHHHH. Internal company reviews determined that the EU1353 process should instead be subject to 40CFR part 63 Subpart FFFF (MON) MACT and during a PTI application modeling found previously unidentified HAPS were present in trace amounts. The

facility updated the MON MACT NOC to include the 1353 building process and submitted a PTI applications to address the MON MACT applicability and trace HAPs .

Emissions

Emissions for October 2020 and February and April 2021 are provided below. The facility was in compliance with permitted emission limits.

Parameter	Oct 2020	Feb 2021	June 2021
VOC (12 Month rolling limit 4.3 TPY)	591.9 lb	794.6 lb	792.4 lb
PM (3.0 pph)	NA	NA	NA
PM10 (12 Month rolling limit 1.4 TPY)	519.6 lb	499.3 lb	505.1 lb
PM2.5 (12 Month rolling limit 1.4 TPY)	519.6 lb	499.3 lb	505.1 lb

All particulate is 0.3 micron so PM10 and PM2.5 are the same.

Material limits

The ROP does not list any specified material limits.

Process/Operational limits

Operating records reviewed are summarized below. Operation screen shots for the time periods are attached.

Parameter	Device /ID	Date/Time	Date/Time	Date/Time
SC III.1 Temperature (40 C or less exit gas)	E3213B chilled water condenser/TI-321318	10/1/ 2020 4:00 PM – 6:00 PM 12.6 to 15.0 C	2/10/2021 4:00 PM – 6:00 PM -1.0 to 2.0 C	6/19/2021 8:00 PM – 10:00 PM 15 to 25 C
SC III.2 Differential pressure (> 0.15 " H2O, < 6 " H2O)	DC3211 dust collector/ PDI-321104	10/2/2020 7:00 AM – 9:00 AM 2.0 – 3.5 dP inches H2O	2/13/2021 9:00 PM – 11:00 PM 1.2 – 1.6 dP inches H2O	6/19/2021 5:00 PM – 7:00 PM 2.5 – 3.5 dP inches H2O while Myers 10 mixer running

3210 Myers 10 Mixer operating status (operating when one the process valves is open).	Myers 10 Mixer valve / ABV321026 and ABV321060	10/1/ 2020	2/10/2021	6/14/2021
		4:00 PM – 6:00 PM	6:00 AM – 8:00 AM	2:00 -4:00 PM
		ABV321060 open	ABV321060 open	ABV321060 open
		10/2/2020	2/13/2021	6/19/2021
		7:00 AM – 9:00 AM	9:00 PM – 11:00 PM	5:30PM- 6:00 PM
		Running	Running	Running
			Running	

Design and Equipment Parameters

SC IV.1. The permittee maintained a device to monitor and record the exit gas temperature of the E-3213B chilled water condenser as required by the ROP.

SC IV.2. The permittee maintained a gauge measure the pressure droop across the DC3211 dust collector as required by the ROP.

Testing/Sampling

The ROP contains a requirement to verify emissions of VOC and Particulate matter upon request of the AQD District Supervisor. No testing has been requested.

Monitoring and Recordkeeping

SC VI.1. The facility completed all required calculations as required by the ROP. The facility uses Emission Master model to determine each components emissions by activity. At the end of each month the number of batches completed is determined and pounds of each component per batch is used to calculate total VOCs for the month. Detailed calculations and input for February 2021 were reviewed including the number of products made, number of batches of each product, and the pounds of emissions vented by product per batch from Emission Master.

PM is also determined by modeled emissions based on the number of batches based on the assumption that 1% of the total amount of filler used reaches the dust collector where a 90% capture efficiency is applied.

Records from the March 2021 MON MACT NOCS list HAPs emitted as benzene, cumene, ethylbenzene, isopropylbenzene, naphthalene, methanol, methylene chloride, m-xylene, p-xylene, toluene, and n-hexane.

SC VI.2. Operating periods in October 2020 and February and June 2021 records were reviewed. The facility monitored and recorded the exit gas temperature of the E-3213B chilled water condenser as required by the ROP.

SC VI.3. Operating periods in October 2020 and February and June 2021 records were reviewed. The facility monitored and recorded the pressure drop across the DC3211 dust collector as required by the ROP.

SC VI.4 The facility calculated and recorded 12 month rolling VOC, PM10 and PM2.5 emission rates as required by the ROP.

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Parameter	Oct 2020	Feb 2021	June 2021
VOC (12 Month rolling limit 4.3 TPY)	591.9 lb	794.6 lb	792.4 lb
PM10 (12 Month rolling limit 1.4 TPY)	519.6 lb	499.3 lb	505.1 lb
PM2.5 (12 Month rolling limit 1.4 TPY)	519.6 lb	499.3 lb	505.1 lb

Stack/Vent Restrictions

The following vent information was confirmed during the inspection.

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)
1. SV1353-004 (3210 Mixer Main Process Vent)	2	30
2. SV1353-005 (EU1353-01 Drum Loading/Packaging Ventilation)	12	30
3. SV1353-007 (3210 Mixer Solids Loading DC3211 Dust Collector Exhaust)	11	9

Annual and Semi Annual Title 5 Deviation report review

During completion of an April 2020 PTI application, a correction to stack vent SV1353-007 from vertical to a 45 degree downward vent was included after discovering the current stack vent orientation in the ROP was incorrect.

An internal audit at Dow determined that the EUB7 emission unit had greater than 100 pre-control emissions and is CAM subject. The facility submitted a CAM plan on September 15, 2021 and included EUB& as a CAM subject unit in the ROP renewal application.

Review of LDAR components determined that the Myers 10 mixer wiper system was not recognized as an agitator under 40CFR Part 63 Subpart UU when LDAR was originally implemented at EU1353. Periodic Method 21 monitoring had not been performed as required. The agitator was monitored and found to be leak free. The Myers 10 mixer wipe system was added to the fugitive emissions database for routine monitoring per Method 21.

Additional deviations for MON MACT were included in the ROP Deviation report and are described in the MON MACT reporting summary.

MON MACT FFFF reports

The EU1353 process was originally considered to be subject to the miscellaneous coatings MACT 40 CFR Part 63 Subpart HHHHH. An internal company review of the coatings MACT preamble found that the coating MACT does not include reaction or separation processes. The 1353 building production process includes a separation process where the components are not stored prior to formulation. It was determined that the EU1353 process should instead be subject to 40CFR part 63 Subpart FFFF (MON) MACT. The facility updated the MON MACT NOC to include the 1353 building process and submitted a PTI application to address the MON MACT applicability and a PTI was approved in August 2020.

No MACT control device change was needed and no excess emissions resulted from the change in MACT applicability or stack correction.

The facility failed to conduct Method 21 monitoring on a leaking pump seal discovered on 12/29/2019 within 5 or 15 days. The failure to monitor after stopping the leak was discovered on 1/20/2020. The pump was monitored for HAPs and no leaks were found. The pump inspection procedures were updated to ensure pump leaks are inspected as required.

In June 2020 a new fugitive emission contractor determined that three valves and associated connectors were improperly classified as Difficult to Monitor or exempt from monitoring. The items were found to be leak free when monitored using Method 21 and the fugitive emission database was updated.

During modeling for a December 2020 PTI application needed to manufacture a new product, previously unidentified HAPS were identified at trace levels from the manufacture of existing products. A PTI was issued in January 2021.



NAME _____

DATE 11/9/2021

SUPERVISOR _____

