

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

A404361479

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|---|--------------------------------------|----------------------------------|
| FACILITY: Dow Silicones Corporation | | SRN / ID: A4043 |
| LOCATION: 3901 S Saginaw Rd, MIDLAND | | DISTRICT: Bay City |
| CITY: MIDLAND | | COUNTY: MIDLAND |
| CONTACT: Amanda Karapas , Air Specialist | | ACTIVITY DATE: 12/15/2021 |
| STAFF: Gina McCann | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MEGASITE |
| SUBJECT: EU207-03 and EU207-04 (FGRULE290) | | |
| RESOLVED COMPLAINTS: | | |

DOW Silicones/EGLE-AQD staff present during the inspection:

- Gina McCann (EGLE-AQD, Senior Environmental Quality Analyst)
- Amanda Karapas (Air Specialist, Dow Silicones)
- Logan Miller (207 building, Production Engineer)
- Rochelle Chantaca (Environmental Specialist, Dow Silicones)

I inspected EU207-03 and EU207-04 (FGRULE290 unit). At the time of the inspection both emission units appeared to be in compliance with all applicable state and federal air quality regulations.

EU207-03 was recently permitted as part of the permitting efforts to comply with the consent decree work required by USEPA. The permit application form says this about the application for PTI 156-06E: *This application is being submitted to support permit updates due to the updating of emission calculations from the Consent Decree, and to support process changes at the 207 Building facility. The application addresses hazardous air pollutant emissions that were not identified in the previous air permit application. The purpose of the application was to provide information to support the production of liquid silicone rubbers, to support permit updates due to the updating of emission calculations from the Consent Decree, and to support process changes at the 207 Building facility.*

EU207-03 is a liquid silicone rubber (LSR) rubber manufacturing batch mixer process. Emissions are controlled by venturi scrubber 22426 and water scrubbers 22412 and 23828. This emission unit is subject to the requirements of 40 CFR Part 63, Subparts FFFF and HHHHH, and to the equipment leak provisions of 40 CFR Part 63, Subpart UU.

Emissions venting to SV207-18 follow the vent path through Scrubber 1, also known as venturi scrubber 22426 and then to water scrubber 22412. Emissions venting to SV207-035 flow through Scrubber 2, or water scrubber 23828. The plant is required to operate each of the scrubbers in a satisfactory manner, which requires meeting the operational standards listed in the table below.

Special condition (SC) 1.1 restricts hourly VOC emissions to 23.6 pph or pounds per hour. SC I.4 restricts hourly ammonia emissions to 3.6 lb/hr (pounds per hour), SCs 5 and 6 restrict hourly PM emissions from vents SV207-18 and SV 20-035, respectively, to 0.10 pounds per 1,000 pounds of exhaust gas. Compliance with these limits are determined through proper operation of the control equipment, i.e. scrubbers 22412, 23828 and 22426. SC VI.2. has the associated monitoring

an recordkeeping that allows verification of the scrubbers operational restrictions are being achieved. At the time of the inspection I viewed each of the scrubbers and their operations in the control room. The table below compares the observed operations against their process/operational restriction from the permit.

| | Process/Operational Restriction | Observed Parametric | Alarm | Transmitter Identification |
|---|---------------------------------|--------------------------------------|-----------------|----------------------------|
| Water makeup rate Scrubber 22412 | ≥ 0.2 gpm | Not venting through this path | 0.2 gpm | FT1469 |
| Recycle liquid flow rate Venturi scrubber 22426 | ≥ 15 gpm | 0.1 Not venting through this path | 20 gpm | FT1473 |
| Water makeup rate of Water scrubber 23828 | ≥ 0.7 gpm | 2.06 gpm | Did not observe | FT25539 |
| Recycle liquid flow rate of water scrubber 23828 | ≥ 20 gpm | 25.1 gpm | 21 gpm | FT25543 |
| Temperature of the recycle liquid entering water scrubber 23828 | ≤ 68°F (20°C) | 59.9 F | 65 F | TT25542 |

As part of the review of the operating parameters for the scrubbers, I reviewed records from January 1, 2021 through December 13, 2021. Each of the scrubbers have identification numbers for their flow transmitters (FT) and during the inspection I verified that the records associated with each FT was the actual FT for each scrubber. Similarly, the temperature of the recycle liquid entering scrubber 23828 is monitored and I verified the temperature transmitter (TT) provided in the records was associated with scrubber 23828.

Generally, when one scrubber is down the other scrubber is operating. However, during the time period September 26-29, 2021 both vent path controls were down. DSC provided an excel sheet that identified scrubber flows and temperature were outside of specifications. These dates were flagged as an investigable occurrence. The production engineer then verifies if process was operating and we confirmed during the inspection that all mixers were not in operation. This time period coincides with plant wide maintenance efforts.

The recycle liquid temperature entering water scrubber 23828 had the same time frame in September identified in spreadsheet when mixers were down. There was an additional timeframe from April 8, 2021 through April 13, 2021 when the scrubber flow for 23282 was below the required 0.7 gpm. The temperature on 23828 was elevated, but we verified that all vents were going to other vent path, 22426/22412. This scrubber series was operating in a satisfactory manner.

SC I.2 restricts VOC emissions to 26.3 ton per year (tpy) based on a 12-month rolling time period ending at the end of each calendar month. SC I.3 restricts non-VOC completely methylated siloxanes to 54.03 tpy based on a 12-month rolling time period ending at the end of each calendar month. SC VI.3 and VI.4 are the associated monitoring and recordkeeping requirements that require the plant to keep, in a satisfactory manner, records of monthly and 12-month rolling time period VOC and non-VOC completely methylated siloxanes emissions for EU207-03 using production records, operating records, and/or other data acceptable to the AQD District Supervisor. I reviewed the emissions records for the 12-month rolling time period ending October 2021. VOC emissions were 2.24 tpy and non-VOC completely methylated siloxane emissions were 6.13 tpy.

Compliance Reporting

I reviewed the ROP Semi-Annual report for the time period January 1, 2021 through June 30, 2021. No deviations were reported for this unit.

Subpart HHHHH Semi Annual Report

I reviewed the ROP Semi-Annual report for the time period January 1, 2021 through June 30, 2021. Coating manufacturing operations in 207 building that are not part of the PUG that complies with the MON are: 207_IFU8 and IFU9 Inline finishing units, 207 AMS_A and B Additive Mix Station and 207 drum tumbler. There were no changes in the method of compliance during this reporting period. No deviations were reported for this unit.

EU207-04

EU207-04 is a 150-gallon mixer, Mixer 15. A silicone polymer, a treating agent, a powder and platinum go into the mixer and is then mixed. Control for particulate is by a dust collector that exists stack SV207-034. A second vent is associated with this unit, SV207-033, which is preceded by a vacuum pump and knockout tank. No reaction takes place and there is not a generation of VOC and/or HAPs. During the inspection we viewed the collector and observed the pulse jets in operation. The table below shows how EU207-04 is categorized under R290.

Rule 290 Exemption Results:

If all Exemption Boxes read "Exempt" and are Green, then the Rule 290 exemption may be used for this emission unit.
The Criteria Box for Bucket 8 is always blue. PM emissions either qualify for exemption under Bucket 8 or are counted under Buckets 5, 6, & 7 according to their ITSL/IRSL values.

| GHG Bucket (Bucket 1) | Rule 290 Chemicals Bucket (Bucket 2) | Mercury (Hg) Bucket (Bucket 3) | Lead (Pb) Bucket (Bucket 4) | ITSL Criteria Bucket (Bucket 5) | IRSL Criteria Bucket (Bucket 6) | Particulates Bucket (Bucket 7) |
|--------------------------------------|--------------------------------------|-----------------------------------|------------------------------------|------------------------------------|------------------------------------|--|
| Allowed ton/month Emissions 6,750 | Allowed lb/month Emissions 1,000 | Allowed lb/month Emissions 0.1 | Allowed lb/month Emissions 16.7 | Allowed lb/month Emissions 20.0 | Allowed lb/month Emissions 20.0 | No IRSL |
| Worst Case Emissions 0.0 | Worst Case Emissions 61.0 | Worst Case Emissions 0.0 | Worst Case Emissions 0.0 | Worst Case Emissions 0.1 | Worst Case Emissions 0.0 | Controlled to 0.01 lb per 1,000 lb exhaust |
| Exempt | Exempt | Exempt | Exempt | Exempt | Exempt | <30,000 cfm exhaust |
| | | | | | | <5% Opacity |
| | | | | | | ITSL > 2.0 |
| | | | | | | Criteria Not Met |
| | | | | | | PM in separate Buckets |

Bucket 8 - All Other Air Contaminants, including PM because Bucket 7 criteria not met

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|-------------------------------------|-------------------------------|--------|
| Allowed lb/month Emissions 1,000 | Worst Case Emissions 268.4 | Exempt |
|-------------------------------------|-------------------------------|--------|

Bucket 9 - Rule 290 Disqualifier
(If shows not exempt, see results tab for products)

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|---|--------|
| Non-Rule 290 Chemical with Screening Level less than 0.04 µg/m ³ are Not Allowed | EXEMPT |
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EU207-04 is subject to the following emission limit in FGRULE290 table:

I. 3. Any emission unit that emits only particulate air contaminants without initial risk screening levels and other air contaminants that are exempted under Rule 290(2)(a)(i) or Rule 290(2)(a)(ii), if all the following provisions are met: (R 336.1290(2)(a)(iii))

- a. The particulate emissions are controlled by an appropriately designed and operated fabric filter collector or an equivalent control system which is designed to control particulate matter to a concentration of less than or equal to 0.01 pound of particulate per 1,000 pounds of exhaust gases and which does not have exhaust gas flow rate more than 30,000 actual cubic feet per minute; (R 336.1290(2)(a)(iii)(A))
- b. The visible emissions from the emission unit are not more than 5% opacity in accordance with the methods contained in Rule 303; (R 336.1290(2)(a)(iii)(B))
- c. The initial threshold screening level for each particulate toxic air contaminant, excluding nuisance particulate, is more than 2.0 micrograms per cubic meter. (R 336.1290(2)(a)(iii)(C))

The monitoring and recordkeeping showing compliance with the above limit is contained in SC FGRULE290, SC. VI.3, which states:

For each emission unit that emits noncarcinogenic particulate air contaminants pursuant to Rule 290(2)(a)(iii), the permittee shall perform a monthly visible emission observation of each stack or vent during routine operating conditions. This observation need not be performed using Method 9. The permittee shall keep a written record of the results of each observation. (R 336.1213(3))

I reviewed records for the months of July 2021 through December 2021. Operations performs daily observations on vents. Once they complete their observations they record on a checklist, which includes verification of typical baghouse maintenance, i.e. Check for leaks, inspect vacuum pumps, etc.

NAME 

DATE 1/10/2022

SUPERVISOR 