

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

A404337992

FACILITY: Dow Corning - Midland Plant		SRN / ID: A4043
LOCATION: 3901 S Saginaw Rd, MIDLAND		DISTRICT: Saginaw Bay
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Mike Gruber , Air & Water Team Leader		ACTIVITY DATE: 11/03/2016
STAFF: Kathy Brewer	COMPLIANCE STATUS:	
SUBJECT: EU212-03; EU2901-12		SOURCE CLASS: MEGASITE
RESOLVED COMPLAINTS:		

**Dow Corning site contacts:**

Michael Gruber, Mi Ops Silicone Plant, Air & Water Team Leader  
Kayla Peacock, Dow Chemical, Air Delivery Specialist

EU212-03: The process is a cold blend mixing kettle.

The most recent PTI for this emission unit was PTI 104-14A issued on June 16, 2015. The emission unit is operated in conformity with the most recent PTI requirements.

The compliance evaluation included a tour of the process including kettle, solvent feed lines, manway status indicator, waste tank, process control room, on site records, and AQD Saginaw Bay District file review. Information reviewed during the inspection indicated that the EU212-03 emission unit was in compliance with the requirements contained in the ROP and PTI.

An infrared (IR) camera was used to view the perimeter of the process vessels and material handling areas. No emissions from the process or waste tank were apparent when viewed with the IR camera.

**ATTACHMENTS**

- VOC 12 month rolling average values used to calculate VOC 12 month average for March, June, and August 2016
- 12 month rolling average values of 6019 Kettle Manway open hours for March, June, and August 2016
- Parametric monitoring records of 6019 Kettle Manway open hours March 2016
- NIST Webbook infrared plot for o-xylene, m-xylene, and p-xylene

**File Review**

- 2015 Title V Annual deviation report
- 2016 Title V Semi Annual deviation report Jan 1 to Jun 30, 2016
- PTI application and MDEQ EvalForm No. 104-14A

**DESCRIPTION**

Several paper coating products are made using a cold blend mixing process in 6019 Kettle, with product drum-off at DV212DO. There are no heating or cooling capabilities on the process or process vents. Raw materials include resin, xylene, toluene, ethylbenzene, and fiber/gum. The manway is opened to load the kettle. Exhaust from the opening of the manway vent to the atmosphere with no pollution controls.

**EMISSION LIMITS**

Pollutant	12-month rolling time period ending on calendar month	Pounds VOC per year	Limit 4.0 Ton per Year
VOC	March 2016	1403	0.7
VOC	June 2016	1634.9	0.8
VOC	August 2016	1708.5	0.9

**PROCESS/OPERATIONAL PARAMETERS**

The permit restricts the time that the manway 6019 Kettle is open during production operations to not exceed a maximum of 1.0 hour per day on an annual average based on a 12 month rolling time period as determined at the end of each calendar month.

The permit also states the 6019 Kettle manway hours open during production operations shall not exceed a maximum of 3.0 hours during any calendar day.

Onsite records review indicate that the facility monitored the manway hours and operated with the kettle manway open during production less than 3.0 hours during any calendar day and less than 1.0 hour per day on annual average.

Parameter	12-month rolling time period ending on calendar month	Minutes per day on annual average	Hours per day on annual average (1.0 hr limit)	Maximum Hours per day on any calendar day (3.0 hr limit)
Manway open	March 2016	17	0.28	1.5
Manway open	June 2016	15.3	0.26	Not reviewed
Manway open	August 2016	15.3	0.26	Not reviewed

**DESIGN/OPERATING PARAMETERS**

The ROP and PTI contain no design or operating parameters.

**TESTING/SAMPLING**

The ROP contains no testing or sampling requirements but does require that testing related records shall be maintained on file for a period of five years.

**MONITORING/RECORDKEEPING**

The permittee is required to keep a log of the daily hours during which the manway of 6019 kettle is open during production operations. A magnetic inducer signals the manway status to operations where it is monitored and recorded. Production records are compared to manway open hours to determine the time the manway was open during production. Records review indicates that the manway hour log is adequately maintained.

The permittee is required to calculate the VOC emission rate from EU212-03 monthly, for the preceding 12 month rolling time period. The facility uses batch analysis to determine emission based on individual component emissions from activity and associated emission factors and production rates by product, summed for reported VOC emissions. Emission factors are from EPA factors, engineering calculations, or, other analytical information. Information was reviewed which showed the emission calculations for June 2016 batch product.

Required records were available and appear to be properly maintained.

**REPORTING**

Title V Annual and Semi Annual deviation reports for 2015 and for January through June 2016 were reviewed. No deviations were reported for EU212-03.

**STACK/VENT RESTRICTIONS**

The stack information below was confirmed during the inspection.

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Description

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Description
SV212-003 (Open Manway hours are required to be recorded in ROP and PTI conditions for EU212-03 and EU212-12)	24	44	Local exhaust for worker H&S operating during solids loading. Services multiple kettles (03, 04, 05, 06 & 012)
SV212-006 <sup>A</sup>	4	19	Vent when 6019 Kettle manway open. Assumes purge vents through manway when manway open
SV212-018	24	42	Drum off services multiple kettles ( 01, 03, 04, 05)
<sup>A</sup> This vent may discharge downwards.			

**Additional vent information:**

SV212-01 Vents are associated with EU212-02.

SV212-10 vent exhausts emissions from R290 PTI exempt processes.

SV212-17 vent exhausts emissions from R290 PTI exempt processes at EU212-10

EU2901-12 is a batch distillation pilot process consisting of distillation column, kettle boiler, and ancillary equipment. Emissions are controlled by a cryogenic condenser.

The most recent PTI for this emission unit was PTI 125-10A issued on May 31, 2013. The emission unit is operated in conformity with the most recent PTI requirements.

An infrared (IR) camera was used to view the perimeter of the process vessels and material handling areas. No emissions from the process were apparent when viewed with the IR camera.

**ATTACHMENTS**

VOC 12 month rolling average values used to calculate VOC 12 month average for March, June, and August 2016  
Parametric monitoring records of Cryogenic condenser coolant for March 1, 2016; June 7, 2016; and August 016

**File Review**

2015 Title V Annual deviation report

2016 Title V Semi Annual deviation report Jan 1 to Jun 30, 2016

PTI application and MDEQ EvalForm No. 125-10A

Parametric monitoring records for March, June, and August 2016

NIST webbook IR spectrum plot for methyl chloride

**DESCRIPTION**

The process is used to purify trimethylsilane and tetramethylsilane to electronic grade levels. Raw material is fed concurrently with water to remove any residual free chlorides. The mixture is then fed to a phase separator and methylated-silane is taken overhead to a holding tank until being sent to a distillation column. The material is sent to the columns kettle reboiler and heated. Impurities are removed, the remaining material is condensed, sent to a holding tank, then packaged. All process emissions are sent to a main vent header that is sent to a cryogenic condenser that emits to a roof stack.

The compliance evaluation included a tour of the process including distillation column, kettle boiler, cryogenic condenser, metering devices, on site records, and AQD Saginaw Bay District file review. Information reviewed during the inspection indicated that the EU2901-12 emission unit was in compliance with the requirements contained in the ROP and PTI.

**DESIGN/OPERATING PARAMETERS**

The permit requires that EU2901-12 shall not be operated unless the cryogenic condenser is installed, operated, and maintained in a satisfactory manner. During the inspection the cryogenic condenser appeared to be installed, operated and maintained properly. The cryogenic condenser was equipped with a coolant temperature indicator.

**EMISION LIMITS**

Records review indicate that monthly and 12-month rolling time period VOC emission rate from EU2901-12 were below allowed values.

Pollutant	12-month rolling time period ending on calendar month	Pounds VOC per year	Limit 7.5 Ton per Year
VOC	March 2016	690.6	0.35
VOC	June 2016	363.2	0.18
VOC	August 2016	507.7	0.25

**MATERIAL LIMITS**

There are no material limits in the ROP.

**PROCESS/OPERATIONAL RESTRICTIONS**

The permittee states that EU2901-12 shall not be operated unless the cryogenic condenser coolant temperature is -40°F or less, except during the phase separator cleanout operation. This is incorrect and should be -40 C (Celsius). This can be changed during the ROP renewal.

Onsite records review indicate that he facility monitored and maintained the cryogenic condenser coolant temperature at less than -40 degrees Celsius.

Date	EU2901-12 Cryogenic condenser coolant temperature	Periods > -40C
Mar 1, 2016	-46.82	None
June 7, 2017	-46.55	None
Aug 2, 2016	-46.72	None
Nov 3, 2016	-46.8	None

**DESIGN/OPERATING PARAMETERS**

The permit requires that EU2901-12 shall not be operated unless the cryogenic condenser is installed, operated, and maintained in a satisfactory manner. During the inspection the cryogenic condenser appeared to be installed, operated and maintained properly. The cryogenic condenser was equipped with a coolant temperature indicator.

**TESTING/SAMPLING**

The ROP contains no testing or sampling requirements but does require that testing related records shall be maintained on file for a period of five years.

**MONITORING/RECORDKEPING**

The permittee is required to monitor and record the cryogenic condensers coolant temperature on a continuous basis. Records review indicate that the cryogenic condenser coolant temperature is continuously monitored.

The permittee is required to keep, in a satisfactory manner, monthly and 12-month rolling time period records of the VOC emission rate from EU2901-12. Required records were available and appear to be properly maintained.

**REPORTING**

Title V Annual and Semi Annual deviation reports for 2015 and for January through June 2016. No deviatons were reported for EU1209-12.

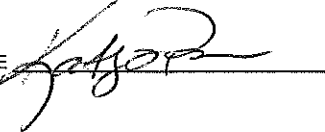
**STACK/VENT RESTRICTIONS**

The stack information below was confirmed during the inspection.

Stack & Vent ID	COMMENT
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	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	
1. SV2901-019 <sup>A</sup>	2	52	Cryogenic Condenser
<sup>A</sup> This stack is not required to exhaust vertically upwards to the ambient air.			

NAME



DATE

12-28-2016

SUPERVISOR

