

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

A403349982

FACILITY: The Dow Chemical Company U.S.A., Midland		SRN / ID: A4033
LOCATION: 1790 Building, MIDLAND		DISTRICT: Saginaw Bay
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Jennifer Kraut ,		ACTIVITY DATE: 08/13/2019
STAFF: Kathy Brewer	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: EU82-S1 Inspection		
RESOLVED COMPLAINTS:		

**EU82 Dow Chemical SRN A4033 August 13, 2019**

Site Contact: Jennifer Kraut, Dow Chemical

EU 82 is the specialty monomers manufacturing equipment used to produce both vinyl benzyl chloride (VBC) and benzocyclobutene (BCB). The process uses reactors, purification distillation/fractionation columns, separators, storage tanks/silos and related equipment. VBC is packaged into drums or smaller containers. BCB packaged into totes.

The process vents emissions to the 963THROX for pollution control.

This emission unit was permitted in PTI 4-04 issued on April 19, 2005.

EU82 is subject to 40 CFR Part 63 Subpart FFFF ( MON MACT) and Subpart EEEE (OLD MACT) and the equipment leak provisions of Subpart H

The inspection included an overview of the process, review of on site records, a walkthrough of the production area and operator process control screens, and review of AQD files.

The emissions reported to MAERS for 2018 were 14 pounds VOC with a material throughput of 220 tons. The supporting documentation for the reported emissions is attached.

Based on the site visit and records review the facility appears to be in compliance with the ROP Special Conditions for EU82-S1.

**On Site files reviewed**

September 2017, April 2018, and March 2019  
Vinyl benzyl chloride (VCB) production records  
Benzocyclobutene (BCB) production records.  
Vinyl benzyl chloride (VCB) 963THROX bypass records  
Benzocyclobutene (BCB) 963THROX bypass records.

**AQD FILES Reviewed**

September 2017 – March 2019 ROP Annual and Semi Annual Deviation reports  
September 2017 – March 2019 Annual and Semi Annual 40 CFR Part 63 reports for Subparts H and FFFF  
AQD chemical release reports  
MAERS 2018 emissions

Tanks store raw and intermediate materials that are fed to a reaction vessel or distillation column. Sequential distillations produce "cuts" that are intermediates. Everything but the distillation bypass vent (SV82002) is exhausted to the vent collection tank then to 936THROX. VCB and BCB are made using the same assets so only one can be made at a time.

Liquid waste goes to on site kiln or site chemical sewer.

**Emission Limits**

The ROP does not contain any specific emission limits.

**Material Limits**

The permit limits the production of VBC and BCB. The facility tracks the number of batches per month and pounds per batch to determine production. BCB is run less frequently and in batches. VBC is run more continuously. A review of on site records indicate the facility was in compliance with the material limits.

Parameter	Requirement	Sept 2017 12 month rolling average	April 2018 12 month rolling average	Mar 2019 12 month rolling average
Vinyl benzyl chloride (VCB) production	Maximum production of 2,160,000 lbs per 12 month rolling time period	514,644 lbs	622,532 lbs	381,356 lbs
Benzocyclobutene (BCB) production	Maximum production of 1,200,000 lbs per 12 month rolling time period	0	0	13,457 lbs

### Process/Operational Restrictions

The ROP does not contain any specific process or operational restrictions.

### Design/Equipment Parameters

The permit limits the process equipment that vents to 963THROX to operating only when 963THROX is operating in a satisfactory manner except for allowed bypassing from the VBC process for no more than 186 hours per month or for no more than 387 hours per month from the BCB process.

Multiple vents feed into the vent collection tank. The vent collection tank vents continuously to 963THROX. If 963THROX shuts down, the VBC/BCB process is notified and their process is shutdown. When 963THROX is shutdown, the pressure build up in VBC or BCB process will automatically shutdown if shutdown has not already started

### Testing/Sampling

The ROP contained no specific testing or sampling requirements

### Monitoring/Recordkeeping

SC VI.1 requires the facility to maintain production records. September 2017, April 2018, and March 2019 production records were reviewed. The total packaged volume is recorded and person recording the packaged amount enter their ID into the tracking system. Each drum's weight is verified. The 12 previous months packaged volume is summed for the 12 month period and compared to the production limit. Detail of values used for April 2018 are attached

SC VI.2 requires the facility to maintain records of each pass event. Bypass occurs through the distillation column vent SV82002. The distillation occurs in steps ("cuts"). The site does not bypass while the first distillation occurs ("20's cut"). The sum of all other bypasses is recorded and compared to the limits. The bypass status for September 20, 2017, April 20, 2018, and March 20, 2019 records were reviewed. Attached are the operations graphs showing the production and bypass.

Attached are monthly bypass totals for April 2018 and March 2019.

Parameter	Requirement	September 2017 monthly total	April 2018 monthly total.	Mar 2019 monthly total
Vinyl benzyl chloride (VCB) production	Maximum bypass hours of 186 per month	0	140 hours	0
Benzocyclobutene (BCB) production	Maximum bypass hours of 387 per month	0	0	0

A review of on site records indicate the facility was in compliance with the monitoring and recordkeeping requirements.

### Reporting

No ROP Deviations were reported for EU82 in reviewed reports.

The VBC operations are subject to the MON MACT. The HAPs listed in MON MACT reports are HCL, Benzene, 1,3, Butadiene, Chlorine, ethyle benzene, methyl chloride, styrene, toluene, o-xylene, Bis (2-ethylhexyl) phalate. HCL is a byproduct or waste dependent on production demand. Styrene, toluene, and o-xylene are byproducts of the process that are usually part of a waste stream. Bis (2-ethylhexyl) phalate is a raw material

The 963THROX is used to control MON MACT subject emissions. The VBC process has no Group 1 wastewater streams. MON MACT reports reviewed found no deviations reported.

The facility reports chemical releases pursuant to SARA Title III. A review of the reported releases since April 2017 found one release on March 6, 2019 of chlorine from a pipeline check valve of approximately 1 pound over 27 minutes. The leaking check valve was replaced.

**Stack/Vent Restrictions**

The following descriptions were provided during the inspection:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Description
1. SV82001	20 <sup>1</sup>	55 <sup>1</sup>	Building vent blower 2 <sup>nd</sup> floor for local exhaust
2. SV82002	2 <sup>1</sup>	65 <sup>1</sup>	Jet vent to atmosphere (top of distillation column). Used if bypass
3. SV963THROX	24 <sup>1</sup>	80 <sup>1</sup>	FG963THROX stack

NAME *H. ZB*

DATE *8/19/2019*

SUPERVISOR *C. Hove*