

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

P102857723	
FACILITY: Corteva Agriscience LLC	SRN / ID: P1028
LOCATION: 701 Washington Street, MIDLAND	DISTRICT: Bay City
CITY: MIDLAND	COUNTY: MIDLAND
CONTACT: Patty Worden , Senior Environmental Specialist	ACTIVITY DATE: 02/09/2021
STAFF: Kathy Brewer	COMPLIANCE STATUS: Compliance
SUBJECT: EU02 inspection portion of FCE.	SOURCE CLASS: MEGASITE
RESOLVED COMPLAINTS:	

EU02 was permitted by PTI #287-09 in February 2010. The PTI was for an agricultural multiproduct plant consisting of reactors, distillation and fractionation columns, separators, storage tanks, and related equipment. The 827 building housed much of EU02 production equipment.

PAI processes within EU02TEMP-S1 are subject to the requirements of 40 CFR Part 63, Subparts A, EEEE, and MMM (National Emission Standards for Hazardous Air Pollutants for Pesticide Active Ingredient Production). In addition, processes subject to MMM are also subject to the equipment leak provisions of 40 CFR Part 63, Subpart H (National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks) as specified in Section 63.1363(b), as applicable.

At the time of the inspection EU02 emissions were controlled by process vents to SARAN TTU (owned by SRN P1026) and particulate filters. The records review and on site inspection focused on compliance with the historical ROP requirements.

A pre-inspection overview was provided on February 2, 2021 that covered the process flow diagram, vent locations, control devices and review of emission calculations. During the February 9, 2021 on site visit the ROP required emission control and metering devices, vents, and real time process screens were viewed. On site records were provided for VOC and toxic screening level based emissions. Process and control device vent status and operating parameters records were also provided .

At the time of the inspection the facility appeared to be in compliance with the requirements of the EU02 ROP conditions.

The facility submitted a PTI modification application in November 2020 and was issued PTI #95-20 on February 5, 2021. The PTI allows Corteva to change the thermal oxidizer used for emission control from the SK Global Hycon TTU (SARAN TTU) to the Corteva owned 954 TTU. The PTI also included a transition period, during which EU02 could exhaust to either TTU.

With the issuance of PTI 95-20 EU02 emission limits for flexible categorical toxics based emissions were removed. The facility originally thought it would be manufacturing several different products but has been making one product so the flexible screening level based permit emission limits were not necessary.

On April 29, 2021 EU02 began venting to the 954 Throx. On July 19, 2021 Corteva notified EGLE that EU02 could no longer vent to the SARAN TTU.

On Site Records Review

954 THROX

- Temperature

- Caustic scrubber glow
- Caustic scrubber pH
- Vent status form V-401

Surge tank V-401 operating hours

AQD File Review

ROP Semi annual Deviation report March 2020, Sept 2020, March 2021

MACT Reports Subpart PAI March 2020, Sept 2020, March 2021.

Permit EVAL forms for PTI 95-20, 287-09

Description

Raw materials are in trucks or storage tanks that use a vapor balance system, pressurized cylinders and drums. Waste goes to trucks or storage tanks with vapor balance. Until April 2021 there was a common vent header that exhausted to 827 building scrubbers then to SARAN TTU. The 827 building scrubbers and SARAN TTU provided the necessary 98% destruction efficiency of emissions and 95% Cl removal from the process to meet Subpart MMM.

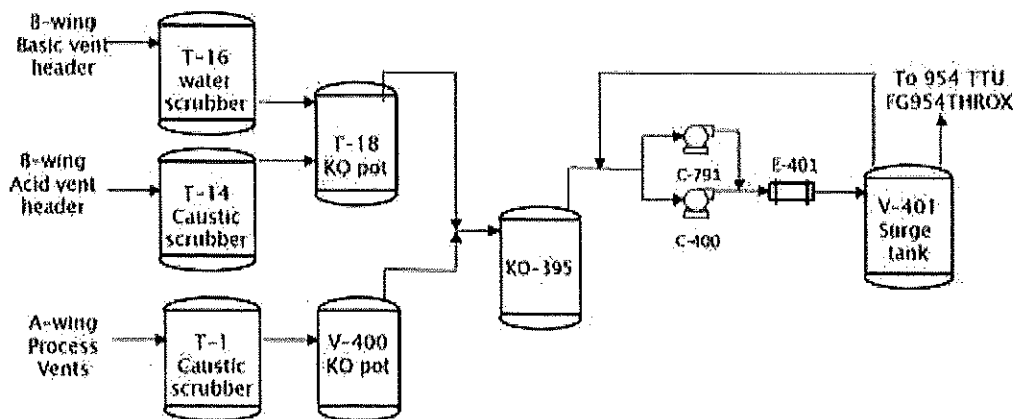
Emissions in the PTI 95-20 issued on February 5, 2021 now have most process emissions exhaust through the 827 Building pretreatment scrubber system and the V-401 surge tank on their way to the 954 THROX and its scrubber system. A combination of three scrubbers, following knock-out pots, and finally the V-401 surge tank as the 824 Building pretreatment scrubbing and vapor emission temporary storage systems.

- The 827 Building pretreatment scrubber system consists of two venturi scrubbers and a packed bed scrubber. They each provide some emission control for a different part of the process emissions. Together, the scrubbers and the following knock-out pots also protect the V-401 vent gas storage system from corrosion due to acid vapors.
- Surge tank V-401 can temporarily store process vent vapor emissions, allowing the process to continue operating during short TTU outages. If a longer TTU outage occurs, the process is shut down and V-401 stores the collected vapors until the TTU is back in service.
- 954 THROX has demonstrated organic compound removal efficiency greater than 99.9%.

A dust collector controls particulate matter emissions from product packaging. Collected particulate matter is returned to the process.

Transfers to raw material storage tanks are vapor balanced. These tanks are nitrogen padded to eliminate breathing losses and are purged to the SARAN TTU or 954 THROX when they must be emptied for maintenance. Transfers from waste storage tanks are vapor balanced and these tanks' breathing losses exhaust to the SARAN TTU or 954 THROX.

NEW control device flow



The surge tank v-401, dust collectors venting to SVEU02-01, and waste storage tanks were viewed during the on site inspection.

Emissions

Month	Total VOCs (lb/month)	12 Month Rolling (lbs/yr) 6 TPY limit	Category 3 (lbs/yr) 350 lbs/yr limit	Category 4 (lbs/yr) 3500 lbs/yr limit	Category 6 (lbs/yr) 12,000 lbs/yr limit
December 2019	13.9	105.61	82.26	17.47	1.15
March 2020	5.36	40.28	21.36	11.09	1.26
July 2020	5.13	43.74	23.13	12.01	1.42

No EU02 ROP Category 1, 2, or 5 pollutants were emitted during the months reviewed. Records for December 2019, March 2020 and July 2020 are attached. March 2020 VOC and TAC calculations were reviewed in detail.

The emissions were calculated using ASPEN that generates a lb/batch emission factor out of the SARAN TTU. The EU02 activities that generate emissions (filling losses, purge, etc.) for each batch are determined and the control device efficiency applied. The number of batches made during a month are multiplied by the emission factor to arrive at total emissions for each chemical. ASPEN emission estimates were most recently updated in September of 2019. AQD permitting staff reviewed the emission estimate calculations and determined the PTI application description appropriately used a 100% conversion to estimate emissions of the products of combustion and use of the control efficiency to determine residual emissions of the controlled compounds.

With the issuance of PTI 95-20 EU02 emission limits changed from flexible categorical toxics based emissions with a VOC limit of 6 TPY and PM limit of 0.10 lb/1000 lb gas to just having the VOC and PM limit. Stack testing is scheduled for the 954 THROX before the end of the year.

PM is generated from packaging activities approximately one hour per shift. PM emissions are estimated to be 0.08 lb/1000 lb gas based on product throughput and 99.9% dust collector efficiency. An example basis for PM emissions is attached.

Material limits

The ROP does not list any specified material limits.

Process/Operational limits

If SARAN TTU or 954 TTU shuts down, the process is required to shutdown unless EU02 does not generate emissions or vents emissions to surge tank V-401. The vent to V-401 is always open The vent exhaust valve, (DI-650) to SARAN TTU (now valve to 954), from V-401 and V-401 pressure is monitored. The hours the V-401 surge tank is used is determined by subtracting the number of hours the vent valve to the TTU (DI_650) is open from the total hours of EU02 venting to the surge tank. Records reviewed indicate there were no times when unpermitted emission from EU02 vented to atmosphere. At the time of the inspection the vent to the SARAN TTU was open and SARAN TTU was operating.

Design and Equipment Parameters

SC.1 prohibits operation of portions of EU02 that vent to the SARAN TTU unless the SARAN TTU is operating satisfactorily.

Date/Time	SARAN TTU Firebox Temp C (H_AC_0220)	SARAN TTU Caustic Scrubber flow (H_AI_0223)	SARAN TTU Caustic Scrubber pH (H_AC_2642)
December 3, 2019 1 PM	984.69	54.04	8.78
March 3, 2020 1 PM	985.05	54.31	8.73
July 1, 2020 1 PM	984.5	53.2	9.2

SC. 2 prohibits the operation of particulate emission generating portions of EU02 unless the particulate filters are operating satisfactorily. During the inspection we viewed the particulate emitting portions of EU02 and dust collector. The valve (DI_647) was closed and no activity was occurring. There were no signs of inadequate solids handling in the area. We also viewed the dust collector vent from the location where on site personnel make required VE observations. Records from VE observations conducted during particulate emitting operations were reviewed and are attached.

Date/Time	Dust filter DC-827B VE reading
December 6, 2019	none
March 2, 2020	none
July 2, 2020	none

Testing/Sampling

The ROP does not list any specified testing or sampling in EU02. Testing of SARAN TTU or 954 Throx is be used to demonstrate compliance with emission limits and applicable requirements in 40 CFR Part 63, Subparts A, EEEE, MMM, and H.

Monitoring and Recordkeeping

SC 1. The facility calculated and emissions of VOCs and TAC that showed compliance with the emission limits in EU02.

SC.2 The facility monitored and recorded the time and duration of each use of the V-401 surge tank during periods of SARAN TTU shutdown.

SC 3 & 4. The facility monitored and recorded the VE from particulate filter as required.

SC 5. The facility maintained a list of materials used in EU02 with default screening levels of 0.1 ug/m3. 4 materials were documented with required information.

Chemical	CAS #	Comment
Enamine	None	Default, Dow 5/2007
Ketone BP	358780-14-0	Default, no MSDS
Methylthiobutanal	16630-52-7	Default, Sigma Aldrich MSDS
Thioaminal		Default, no MSDS

The following devices and instrumentation associated with emission controls in PTI #95-20 were also viewed during the on site inspection.

Device	pH	FLOW ID	Scrubber flow
Wing A Scrubber T-1 (AI_039)	12.8 (AI_040 (16 gpm Minimum)	38.3 gpm
Wing B Scrubber T-14 (AI_913)	13.3	AI_919 (10 gpm Minimum)	19.6 gpm
Wing B Scrubber T-16 (AI_039)		AI_902 (42 gpm Minimum)	53.4 gpm

Stack/Vent Restrictions

The following vent information was confirmed during the inspection.

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Description
1. BLDG 827 Closed Vent System	(See FGSARANTTU)	(See FGSARANTTU)	Surge tank V-401
2. SVEU02-01 (DC-350 Spencer Vacuum)	2	41	Dust collector

Rules 278 to 291 – Permit Exemptions

Per the PTI 95-20 application the company is planning to operate the following under an exemption from the requirement to obtain a PTI. Therefore, this equipment was not reviewed under Rule 201(1) and is not included in the permit conditions.

Exempt Equipment	Description	Exemption Rule (delete this column if you don't know the exemption rule)

Exempt Equipment	Description	Exemption Rule <i>(delete this column if you don't know the exemption rule)</i>
T-26	Bleach storage tank	284(2)(i)
MRU-49	Storage tank for 50% ethylene glycol	284(2)(c)
MRU-17	Storage tank for 50% ethylene glycol	284(2)(c)
MRU-39	Storage tank for 50% ethylene glycol	284(2)(c)
Cooling tower	Closed loop system	280(2)(d)

Deviation and MACT reports review

March 2021/Sept 2020: PAI MACT Group 1 IR monitoring of 2 waste trailer associated with 827 building in >5% OHAP service not monitored May - June due to contractor restrictions on site access during COVID-19. Visual monitoring found no leaks during this period.

No excess emissions and 1.47% monitoring downtime January – June. No excess emissions or monitoring downtime July - December

March 2020/Sept 2019: PAI MACT Three dual mechanical seal (DMS) equipment pieces had weekly inspections missed after being put into >5% OHAP service related to Sept shutdown when updated inspection sheet not moved to approved server. DMS inspection sheet was moved to approved server.

NAME *Kyle Run*

DATE *8/18/2021*

SUPERVISOR *Chris Hare*