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

P102768011										
FACILITY: DDP Specialty Electronic N	SRN / ID: P1027									
LOCATION: 3400 S. Saginaw Rd Unit	DISTRICT: Bay City									
CITY: MIDLAND	COUNTY: MIDLAND									
CONTACT: Alyssa McGibbon , Enviro	nmental and sustainability specialist	ACTIVITY DATE: 05/09/2023								
STAFF: Kathy Brewer	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE								
SUBJECT: Section 2: EU06-HighPurity										
RESOLVED COMPLAINTS:										

EU06-HIGHPURITY is the High Purity Anhydrous hydrogen chloride (HCI) storage and distribution process located in the 954 block within the Dow iPark in Midland, MI.

This emission unit was permitted in PTI No. 159-19 as EU06. The EU06 process and associated assets were later divided in EU06-LOWPURITY owned by DDP Specialty Electronic Materials (DuPont) and EU06-HIGHPURITY owned by Nutrition & Biosciences (N&B/IFF).

None of the anhydrous HCI handled in EU06-HIGHPURITY is used to produce "liquid HCI product at a concentration of 30 weight percent or greater during its normal operations" [63.8985(a)], so nothing in EU06 is subject to the HCI Production NESHAP.

The facility reported the following throughput and emissions in MAERS for EU06-HIGHPURITY:

- 2022 50.75 Ton HCL throughput, MAERS emissions; PM 0.0239 lbs
- 2021 47.5 Ton HCL throughput, MAERS emissions, PM 0 lbs

A process overview, emission locations, and compliance records were provided. We viewed emission control devices and associated metering devices, process vents including vent control to each emission control device and ownership change locations, and, real time process screens. Process and control device 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 EU06-HIGHPURITY ROP conditions.

On Site Records Review HCL Distribution exhaust valve status Petrie Block exhaust valve & purge status Control Device Status HCLSCRUBBER, FG954THROX Absorber status FG954THROX Scrubber status Control Devices Operation parameters February, June, August 2022 ; May 2023 Logic control for vents Vent process flow

<u>AQD File Review</u> ROP Semi annual Deviation report Sept 2022, March 2023 MAERS 2021 and 2022 reports

# Description

The High Purity Anhydrous HCl system receives material via tube trailers. Anhydrous HCl is vaporized and distributed to end users as a gas. Tube Trailer connection piping and emissions from tube trailer vent down are exhausted either to T-101 Scrubber or to the 954 Throx Absorber and 954 Throx Scrubber.

The EU06-HIGHPURITY process was art of the former EU06 process and prior to that part of the EU85 emission unit permitted under PTI 78-03.



The rail car and tube trailer vent lines tie into the manual vent path line (yellow)

N&B/IFF owns the EU06-HIGHPURITY assets, DDP owns the EU06-LOWPURITY assets and the FGHCLSCRUBBER. Corteva owns the EU05 assets and the FG954THROX.

### **Emission Limits and Material Limits**

The ROP contains no emission or material limits

### **Process/Operational Restrictions**

The ROP contains no process or operational restrictions.

### **Design/Equipment parameters**

SC IV.1. restricts depressurization of the anhydrous HCL distribution system unless the control devices are installed, maintained, and operated in a satisfactory manner. We viewed the FGHCLSCRUBBER control device during the on site inspection. Records of operational data for were reviewed for the T-101 Scrubber (part of FGHCLSCRUBBER) and the FG954THROX.

Operating conditions for each control device are established in the DDP or Corteva ROP and verified by stack testing.

Control Device	Operating condition required for 99.6% removal
FGHCLSCRUBBER (T-101)	HCL by Weight of 6% or less
FG954THROX (Absorber)	exit gas temperature from Absorber/Quench Column (T-3601) shall not exceed a maximum of 80°C
FG954THROX (Scrubber)	liquid flow rate for Scrubber (T-3602) shall be maintained at a minimum of 40.5 gallons per minute
FG954THROX (Scrubber)	pH of the scrubbing solution for the Scrubber (T -3602) recirculation line shall not be less than 8.5

The March 2022 performance test and demonstrated 99.9 percent removal of HCl.

Records reviewed indicate the facility is in compliance with ROP design and equipment parameter conditions.

### Dupont provided vent status and control operating parameters.

Description	V103 Recirc. Loop %HCL based on Density AI2548 BPCS Title V	T101 HURON WATER ADDITION FLOW AI231B BPCS	N	E101 ANHCI INLET BV DO201B SIL2		V103 NORTH PUMP P103A DO210B		V103 BOTTOMS S PUMP P103B D0222B	HAT TANKFARM VENT BV DO3638		Problem	Time problem	V103 Recirc. %HCl Problem	T101 HW addition problem	vn
Time \ Tag	DT10647	FT10717	٠	ABV10414	Ŧ	P10696	¥	P10698	ABV23201	*			] [	-	Ŧ
13-Feb-2022 13:15:00		0	25		0	1	1		0	0	0	0	) 1	D	¢
13-Feb-2022 13:18:00	)	0	25		0	J	1		0	0	0	0	) (	D	¢
13-Feb-2022 13:21:0		0	25		0	1	1		0	0	0	0	) (	D	¢
13-Feb-2022 13:24:00	)	0	25		0	J	1		0	0	0	0	) (	D	¢
13-Feb-2022 13:27:0	)	0	25		0	1	1		0	0	0	0	) (	D	C
13-Feb-2022 13:30:00	)	0 25	5.1		0	)	1		0	0	0	0	) (	0	¢
13-Feb-2022 13:33:00	)	0 25	5.2		0	1	1		0	0	0	0	) (	D	¢
13-Feb-2022 13:36:00	)	0 25	5.3		0		1		0	0	0	0	) (	D	(
13-Feb-2022 13:39:00		0 25	5.2		0	)	1		0	0	0	0	) (	D	¢
13-Feb-2022 13:42:0	)	0 2:	5.1		0	1	1		0	0	0	0	) (	D	C
13-Feb-2022 13:45:0	)	0 25	5.1		0	1	1		0	0	0	0	) (	D	¢
13-Feb-2022 13:48:00		0	25		0	J	1		0	0	0	0	) (	D	¢

Description	V103 Recirc. Loop %H0	T101 HURON WATER	A E101 ANHCI INLET BV	(V103 NORTH PUMP P	V103 BOTTOMS S PUN	HAT TANKFARM VEN	r Problem	Time problem	V103 Recirc. %HCl Problem	T101 HW addition problem
Time \ Tag	DT10647	FT10717	ABV10414 -	P10696	P10698	ABV23201				-
15-Jun-2022 12:30:00	0	34.7	7 0	) 1	0	(	0 0	0	0	1
15-Jun-2022 12:33:00	0	34.4	۱ (	1	0	(	0 0	0	0	1
15-Jun-2022 12:36:00	0	34.1	L C	1	0	(	0 0	0	0	1
15-Jun-2022 12:39:00	0	34.2	2 0	1	0	(	0 0	0	0	i Si
15-Jun-2022 12:42:00	0	34.2	2 0	1	0	(	0	0	0	1
15-Jun-2022 12:45:00	0	34.3	s c	1	0	(	0 0	0	0	j i i

Description	V10 %H Der Titl	03 Recirc. Loop ICL based on Insity AI254B BPCS Ie V	1	T101 HURON WATER ADDITION FLOW A1231B BPCS		E101 ANHCI INLET BV DO201B SIL2		V103 NORTH PUMP P103A DO210B		V103 BOTTOMS S PUMP P103B D0222B		HAT TANKFARM VENT BV DO363B		Problem	Time problem	V103 Recirc. %HCl Problem	T10 add	1 HW lition blem
Time \ Tag	DT	10647	· F	FT10717	•	ABV10414	-	P10696	Ŧ	P10698	-	ABV23201	Ŧ	*	*			*
23-Aug-2022 22:12:00	0	0.1	1	25.	3	(	0		1	(	0		0	0	0	(	)	0
23-Aug-2022 22:15:00	0	0.1	1	25.	3	(	0		1	(	0		0	0	0	(	)	0
23-Aug-2022 22:18:00	D	0.1	1	25.	3	(	0		1	(	0		0	0	0	(	)	0
23-Aug-2022 22:21:00	D	0.1	1	25.	2	(	0		1	(	0		0	0	0	(	)	0
23-Aug-2022 22:24:00	D	0.1	1	25.	2	(	0		1	(	0		0	0	0	(	)	0

### Corteva provided control device operating parameters

Description	ME3501 SIL2 TitleV Firebox Temp #1 [?C] (TT73655)	ME3501 SIL2 TitleV Firebox Temp #2 [?C] (TT73656)	ME3501 TitleV Oxygen Analyzer #1 [%VOL] (AT81071)	ME3501 TitleV Oxygen Analyzer #2 [%VOL] (AT810XX)	SIL2 T3602 Total liquid flow [GPM]	BPCS T3602 TitleV NaOH Scrubber Recirc pH [pH]	BPCS T3602 TitleV NaOH Scrubber Recirc pH [pH]	T3601 TitleV HCL Absorber Exit Temp [DegC]	T3601 TitleV HCL Absorber Exit Temp [DegC]	ME3501 SIL2 938_BLDG H BTU Upstream BV [OPEN, CLSD]
Time \ Tag	A_AI_0456	A_AI_0472	A_AI_0533	A_AI_0574	A_AC_0246	A_AI_0506	A_AI_0524	A_AI_0513	A_AI_0593	A_DO_0544
13-Feb-2022 13:20:00	799.052	816.777	5.87	5.937	88.74178314	9.698	9.602	48.367	48.02752304	CLSD
13-Feb-2022 13:25:00	796.342	815.568	6.004	6.027	89.77554321	9.698	9.602	48.269	48.06740189	CLSD
13-Feb-2022 13:30:00	796.049	815.275	5.982	6.043	90.51522064	9.712	9.598	48.47	48.06574249	CLSD
13-Feb-2022 13:35:00	797.257	815.861	5.892	5.982	90.16898346	9.719	9.602	48.367	48.06740185	CLSD
13-Feb-2022 13:40:00	799.381	817.985	5.892	5.915	88.7937851	9.698	9.602	48.77	48.27106094	CLSD
13-Feb-2022 13:45:00	795.756	819.194	5.932	5.976	87.77622986	9.708	9.605	49.185	48.85906983	CLSD
18-Feb-2022 18-50:00	798.455	819 19	5 954	5 982	89.01091766	9 701	9 5 9 5	49 289	49 03827663	cisp

(1000)				-								or			e		F			0-		0	-		
	L																							Μ	E3501 SIL2
	1	ME3501 SIL2 T	itleV	ME3501 9	IL2 TitleV	ME350	1 TitleV		ME3501	TitleV					BPCS T3602 Tit	leV	BPCS T36	02 Title	1	T3601 TitleV H	HCL	T360	1 TitleV HCL	93	88_BLDG H
	F	Firebox Temp	#1[?C]	Firebox	emp #2 [?C]	Oxyge	n Analyzer #	1	Oxygen	Analyzer	#2	SIL2	T3602 Total		NaOH Scrubbe	r	NaOH Scr	ubber		Absorber Exit	Temp	Abso	orber Exit Temp	U	pstream B
Description	{	(TT73655)		(TT73656	}	[%VOL	{AT81071}		[%VOL]	{AT810X0	()	liqui	d flow [GPM]		Recirc pH [pH]		Recirc pH	[pH]		[DegC]		[Deg	[2]	[0	PEN, CLSD
Time \ Tag	1	A_AI_0456	*	A_AI_04	72 💌	A_AL_O	533	٣	A_AI_0	574	Ŧ	A_AC	_0246	۲	A_AI_0506		A_AI_052	4	Y	A_AI_0513	Ŧ	A_A	0593	A	DO_0544
15-Jun-2022 12:30:00	0		798.173		803.08		6.	217		6	5.233	3	87.86260	986		9.598	3	9	.602		54.937		54.9853057	9 CI	LSD
15-Jun-2022 12:35:00	0		799.052		820.476		5.5	976		6	5.032	2	88.3918	157		9.602	2	9	.609		55.034		54.9053535	5 CL	LSD
15-Jun-2022 12:40:00	0		797.257		827.763		5.	775			5.82	2	88.70510	101		9.609		9	.609		55.138		54.8493270	9 CI	SD

Description	ME3501 SIL2 TitleV Firebox Temp #1 [?C] {TT73655}	ME3501 SIL2 TitleV Firebox Temp #2 [?C] {TT73656}	ME3501 TitleV Oxygen Analyzer #1 [%VOL] {AT81071}	ME3501 TitleV Oxygen Analyzer #2 [%VOL] {AT810XX}	SIL2 T3602 Total liquid flow [GPM]	BPCS T3602 TitleV NaOH Scrubber Recirc pH [pH]	BPCS T3602 TitleV NaOH Scrubber Recirc pH (pH)	T3601 TitleV HCL Absorber Exit Temp [DegC]	T3601 TitleV HCL Absorber Exit Temp [DegC]	ME3501 SIL2 938_BLDG H BTU Upstream BV [OPEN, CLSD]
Time \ Tag	A_AI_0456	A_AI_0472	A_AI_0533	A_AI_0574	A_AC_0246	A_AI_0506	A_AI_0524	A_AI_0513	A_AI_0593	A_D0_0544
22-Aug-2022 22:10:00	796.635	830.217	6.094	5.976	86.43105316	9.612	9.619	55.499	55.0021209	7 CLSD
22-Aug-2022 22:15:00	796.049	832.634	6.049	5.948	86.46070862	9.6	9.641	55.602	55.0036315	CLSD
22-Aug-2022 22:20:00	796.964	829.924	6.133	6.071	87.08784485	9.63	9.645	55.401	55.19739914	CLSD
22-Aug-2022 22:25:00	798.173	833.843	5.959	5.892	87.50865936	9.634	9.645	55.352	55.0438346	CLSD

# Testing/Sampling

The ROP contains no specific testing requirements for EU06-HIGHPURITY. Testing requirements for demonstrating permitted control of 99.6% removal efficiency are requirements for proper operation of FGHCLSCRUBBER and FG954THROX.

Monitoring/Recordkeeping

SC VI.1. and 2. require the permittee to have a plan that identifies the operating parameters that the owners of FGHCLSCRUBBER and FG954THROX shall provide each month to N&B/IFF to demonstrate compliance with the 99.6% removal efficiency of HCL.

Per the most recent plan, 954 THROX Scrubber T-3602 is required to maintain a minimum flow rate of 40.5 gpm and pH of 8.5 which were set during the March 2022 performance test and demonstrated 99.9 percent removal of HCl. The 954 THROX T-3601 Absorber temperature is maintained below 80°C in accordance with Title V requirements for FG954THROX-S1.

A copy of each plan is attached. Records reviewed indicate the facility is in compliance with ROP monitoring and recordkeeping conditions.

Records of operation conditions and control of vented emissions were reviewed for periods when HCL distribution was exhausting to a control device.

	February 13, 2022	June 15, 2022	August 23, 2022
	Purge performed Feb 13 2022 between 13:20 & 13:47	Purge performed June 15 between 12:30 and 12:39	Purge performed Aug 23 between 22:12 & 22:24
HCL Distribution depressurization status (exhaust valve used to evacuate Petrie area distribution line) Manual Valve ID= DI(805)	Closed	Closed	Closed
Petrie Block Valve to Absorber ID = DO(810)A	Open	Open	Open
	Dupont FFAB (T-101)		Dupont FFAB (T-101)

Control device receiving exhaust		Dupont FFAB (T- 101)								
FGHCLSCRUBBER operating parameter status										
Vent valve to E-101 Absorber status	TRUE	TRUE	TRUE							
(ID = DC 3872)) status										
Flow gpm ID= FT10717	25 GPM	25	25							
% HCl ID= DT10647	0	0	0.1							
FG954THROX Absorber opera	ting parameter status	 }	<u> </u>							
Absorber T-3601 Quench exit temperature (80 C) ID=AI513A	48	55	55							
FG954THROX Scrubber operat	ing status		<u> </u>							
T-3602 Scrubber Flow (40.5 gpm)	90	88	86							
ID = AC246A										
T-3602 Scrubber pH (8.5) ID = AI506A	9.7	9.6	9.6							

Records reviewed indicate the facility is in compliance with ROP monitoring/recordkeeping conditions.

Reporting

Review of MAERS reporting found the basis for any emissions venting to 945THROX was not included. The facility was informed of the MAERs emission basis documentation.

No ROP Deviations associated with EU06-HIGHPURITY were reported for reports reviewed.

# Stack/Vent Restrictions

information. Venting pathways were viewed while on site and appeared to be as described in permitting

Laty Brune

NAME

DATE 10/4/2023

SUPERVISOR Chris Have

10/1/2023

https://intranet.egle.state.mi.us/maces/WebPages/ViewActivityReport.aspx?ActivityID=24... 10/4/2023