

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit No. 1733A

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

AIR CONTAMINANTS DATA

Emission Point No. (1) <u>TPY(5)</u>	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u> lb/hr	
7-1-100	Ammonia Upset Flare	VOC	<0.01	<0.01
		NO _x	0.01	0.05
		CO	0.02	0.09
7-2-2	Fugitives (4)	VOC	1.68	7.37
		NH ₃	0.51	2.22
7-2-3	Truck Loading	VOC	0.34	0.08
7-2-4	Rail Loading	VOC	2.80	0.07
7-2-5	T-12 Overhead Drum	VOC	0.045	0.18
7-2-6	Dehydro Methane Burner	CO	0.09	0.36
		NO _x	0.47	1.78
		PM ₁₀	0.02	0.09
		VOC	0.02	0.09
7-2-7	Dehydro Methane Burner	CO	0.09	0.36
		NO _x	0.47	1.78
		PM ₁₀	0.02	0.09
		VOC	0.02	0.09
7-2-8	Dilute Acid Water Tank	Organic Acids	0.038	0.15
7-2-9	Anolon Storage Tank	VOC	0.30	1.40
7-2-11	Tech Anol Feed Tank	VOC	0.15	0.16

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
7-2-12	Tech Anol Feed Tank	VOC	0.02	0.16
7-2-13	D-Anone Storage Tank	VOC	0.19	0.81
7-2-14	Dehydro Feed Tank	VOC	0.05	0.10
7-2-15	Cyclohexanol Tank	VOC	0.05	0.05
7-2-16	Cyclohexanol Tank	VOC	0.04	0.43
7-2-17	Cyclohexanone Storage Tanks	VOC	4.75	0.36
7-2-18	Cyclohexanone Storage Tank	VOC	2.37	0.18
7-2-19	Cyclohexanone Storage Tank	VOC	2.37	0.18
7-2-21	Concentrated Catalyst Tank	VOC	2.51	0.02
7-2-22	Cyclohexanone Storage Tank	VOC	2.37	0.18
7-2-23	Cyclohexanone Storage Tank	VOC	2.38	0.18
7-2-24	Anolon Storage Tank	VOC	0.051	0.20
7-2-25	Dehydro Feed Tank	VOC	1.37	0.07
7-2-27	Dilute Catalyst Tank	VOC	0.71	0.04
7-2-30	Anone and Anolon Storage Tank 0.35		VOC	1.18
9-1-24	Cyclohexane Tank	VOC	0.26	0.32
9-1-25	Cyclohexane Tank	VOC	0.23	0.38
9-1-26	Cyclohexane Tank	VOC	0.12	0.38

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
9-1-27	Concentrated Acid Water Tank	Organic Acids	<0.003	0.03
9-1-28	Emergency Dump Tank	VOC	60.87	4.66
11-1-2	Catalytic Incinerator	CO	64.19	281.18
		NO _x	0.97	
		PM	0.05	
		VOC	26.99	
11-1-3	Dehydro Methane Burner	CO	0.09	0.36
		NO _x	0.47	
		PM	0.02	
		VOC	0.02	
11-1-4	Dehydro Methane Burner	CO	0.09	0.36
		NO _x	0.47	
		PM	0.02	
		VOC	0.02	
11-1-5	Dehydro Methane Burner	CO	0.09	0.36
		NO _x	0.47	
		PM	0.02	
		VOC	0.02	
11-1-6	Dehydro Methane Burner	CO	0.10	0.36
		NO _x	0.51	
		PM	0.03	
		VOC	0.03	
11-1-7	Waste Burner	CO	0.56	2.45
		NO _x	0.37	
		PM	0.12	
		VOC	4.00	
11-1-9	Vent Condenser	VOC	0.02	1.3

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
11-1-10	Anolon Tank	VOC	0.89	0.12
11-1-14	Overhead Condenser	VOC	<0.01	<0.01
11-1-21	EP 316/223 Tank	VOC	0.40	0.11
11-1-22	EP 323 Storage Tank	VOC	<0.01	0.024
11-1-23	Concentrated Acid Water	Organic Acids	<0.01	<0.01
11-1-25	Concentrated Catalyst Tank	VOC	1.93	0.02
11-1-26	Dilute Catalyst Tank	VOC	0.04	0.11
11-1-27	Hotwell Tank	VOC	<0.001	<0.01
11-1-29	Anolon Tank	VOC	0.02	1.3
11-1-35	Cyclohexanone Tanks (3)	VOC	1.28	6.11
11-1-36	Dehydro Feed Tank	VOC	0.14	0.19
11-1-37	Dehydro Feed Tank	VOC	0.14	0.19
11-1-38	Dehydro Feed Tank	VOC	0.14	0.19
11-1-39	Dehydro Feed Tank	VOC	0.14	0.19
11-1-40	Heavies Cracking Feed	VOC	0.11	0.52
11-1-41	EP-316 Storage Tank	VOC	0.43	0.30
11-1-42	EP-316 Storage tank	VOC	0.34	0.54
11-1-43	Dehydro Methane Burner	CO	0.22	0.96

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
		NO _x	0.61	2.67
		PM	0.02	0.09
		VOC	0.04	0.18
11-1-44	Dehydro Methane Burner	CO	0.22	0.96
		NO _x	0.61	2.67
		PM	0.02	0.09
		VOC	0.04	0.18
11-1-45	Emergency Dump Tank	VOC	62.35	0.86
11-1-47	Fugitives (4)	VOC	2.79	12.21
11-1-48	Fugitives (4)	VOC	2.17	9.52
11-1-49	Fugitives (4)	NH ₃	0.63	2.78
11-1-50	Railcar Loading	VOC	3.33	4.03
11-1-51	Truck Loading	VOC	3.00	0.19
11-1-52	Off-site Barge Loading	VOC	3.60	0.52
11-1-53	Deepwell Tank	VOC	<0.01	<0.001
11-1-55	Deepwell Tank	VOC	0.30	<0.001
11-1-71	Deepwell Tank	VOC	0.01	0.001
12-2-4	Deepwell Tank	VOC	<0.01	<0.001
12-2-5	Deepwell Tank	VOC	<0.01	<0.001
12-2-6	Deepwell Tank	VOC	<0.01	<0.001
12-2-8	Deepwell Tank	VOC	<0.01	<0.001

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
12-2-9	Deepwell Tank	VOC	<0.01	<0.001
12-2-10	Deepwell Tank	VOC	<0.01	0.01
12-2-11	Deepwell Tank	VOC	<0.01	0.01
12-2-12	Deepwell Tank	VOC	<0.01	0.03
7-3-34	Kettle Scrubber Vent	Acids	0.5	2.19
7-3-35	Catalytic Converter Vent	PM	<0.001	<0.001
7-3-42	Catalyst Oven Vent	PM	<0.001	<0.001
7-3-43	Catalyst Oven Vent	PM	<0.001	<0.001
7-3-44	Catalyst Oven Vent	PM	<0.001	<0.001
7-3-55	Fugitives (4)	NH ₃	0.98	4.3
12-1-1	Vent Gas Flare	NO _x	121.51	532.20
		CO	0.02	
		VOC	<0.01	
12-1-2	Nitric Oxide Flare	NO _x	2.19	9.58
		CO	4.37	
		VOC	0.09	
12-1-8	Concentrated Sulfuric Acid Storage Drum	H ₂ SO ₄	<0.001	<0.001
12-1-9	Concentrated Sulfuric Acid Storage Drum	H ₂ SO ₄	<0.001	<0.001
12-1-29	Catalytic Converter Vent	PM	<0.001	0.003

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
12-1-30	Kettle Scrubber Vent	Acids	2.19	9.52
12-1-31	Catalyst Oven Vent	PM	<0.001	<0.001
12-1-32	Catalyst Oven Vent	PM	<0.001	<0.001
12-1-33	Catalyst Oven Vent	PM	<0.001	<0.001
12-1-34	Catalyst Oven Vent	PM	<0.001	<0.001
12-1-35	Catalyst Oven Vent	PM	<0.001	<0.001
12-1-36	Catalyst Oven Vent	PM	<0.001	<0.001
12-1-44	Catalyst Transfer Station	PM	7.04	29.29
12-1-45	Fugitives (4)	NH ₃	1.61	7.1
12-1-46	Ammonia Flare	NH ₃	0.09	0.38
		NO _x	1.84	8.05
		CO	9.15	40.10
		VOC	0.14	0.60
12-1-47	Carbon Beds	VOC	3.71	2.10
12-1-48	Burner Flare 2	VOC	0.12	0.52
		NO _x	2.90	12.71
		CO	5.80	25.37
7-1-1	Neutralization Standpipe	VOC	<0.01	<0.01
7-1-2	Neutralization Standpipe	VOC	<0.01	<0.01
7-1-7	Anone Stripper OH Drum	VOC	0.53	0.003
7-1-8	Benzene Scrubber Vent	VOC (Benzene)	0.75	3.29

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
7-1-9	Slurry Settling Drum	VOC	0.28	<0.001
7-1-10	Wash Water Storage Tank	VOC	<0.001	<0.001
7-1-11	Wash Water Storage Tank	VOC	<0.001	<0.001
7-1-12	Wash Water Storage Tank	VOC	<0.001	<0.001
7-1-13	Wash Water Storage Tank	VOC	<0.001	<0.001
7-1-14	SO ₂ Scrubber	SO ₂	2.72	11.92
7-1-15	Neutralization Separator Drum	VOC	0.45	<0.001
7-1-16	Neutralization Circulation Drum <0.001		VOC	0.14
7-1-17	Neutralization Crude Storage Tank	VOC	0.20	<0.001
7-1-20	Kettle Dump Drum	VOC	0.02	<0.001
7-1-21	Overhead Drum	VOC	0.01	<0.001
7-1-22	Bottoms Drum	VOC	0.10	<0.01
7-1-23	Check Tank	VOC	0.20	0.01
7-1-24	Check Tank	VOC	0.20	0.01
7-1-25	Storage Tank Vent	VOC	7.46	0.006
7-1-26	Kettles Overhead Tank	VOC	0.005	<0.001
7-1-27	Bottoms Drum	VOC	0.05	0.004
7-1-28	Check Tank	VOC	0.07	<0.001

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
7-1-29	Anone Surge Tank	VOC	1.20	0.01
7-1-30	Oleum Scrubber Vent	SO ₃ /H ₂ SO ₄	<0.001	0.003
7-1-31	Oxime Holdup Tank	VOC	1.02	0.013
7-1-32	Neutralization Separator Drum	VOC	0.45	<0.001
7-1-33	Neutralization Circulation Drum 0.05	VOC		0.39
7-1-34	Neutralization Crude Storage Tank	VOC	0.39	0.05
7-1-35	Extract Storage Tank	VOC	1.96	<0.01
7-1-36	Overheads Drum	VOC	0.08	<0.01
7-1-37	Bottoms Tank	VOC	0.12	<0.01
7-1-38	Product Check Tank	VOC	0.17	0.01
7-1-39	Product Check Tank	VOC	0.17	0.01
7-1-40	Overheads Drum	VOC	0.007	0.001
7-1-41	Poly Return Storage Tank	VOC	0.13	0.002
7-1-42	Oxime Salt Storage Tank	VOC	0.16	<0.001
7-1-43	Mother Liquor Storage Tank	VOC	0.16	<0.001
7-1-44	Flake Feed Storage Tank	VOC	0.19	0.12
7-1-45	Product Check Tank	VOC	0.01	<0.001
7-1-46	SO ₄ Scrubber	PM	4.86	21.29

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
		VOC	4.98	21.81
7-1-47	Jet Vent	VOC	0.01	0.046
7-1-48	Jet Vent	VOC	0.01	0.046
7-1-50	Hot Well Tank	VOC	<0.01	<0.001
7-1-51	Hot Well Tank	VOC	<0.01	<0.001
7-1-52	Hot Well Tank	VOC	<0.01	<0.001
7-1-53	Hot Well Tank	VOC	<0.01	<0.001
7-1-54	Hot Well Tank	VOC	<0.01	<0.001
7-1-55	Hot Well Tank	VOC	<0.01	<0.001
7-1-56	Hot Well Tank	VOC	<0.01	<0.001
7-1-57	Hot Well Tank	VOC	<0.01	<0.001
7-1-58	Jet Vent	VOC	0.01	0.046
7-1-59	Jet Vent	VOC	0.01	0.046
7-1-60	Jet Vent	VOC	0.01	0.046
7-1-61	Jet Vent	VOC	0.01	0.046
7-1-62	Jet Vent	VOC	0.01	0.046
7-1-63	Jet Vent	VOC	0.01	0.046
7-1-64	N ₂ Drying Tower	VOC	0.056	0.24
7-1-65	Vacuum System	VOC	0.01	0.046

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
7-1-66	Tank Farm Fugitives (4)	VOC	0.30	1.31
7-1-67	Oximation Fugitives (4)	VOC	0.30	1.3
	NH ₃	0.48	2.1	
7-1-68	Distillation Fugitives (4)	VOC	0.3	1.32
7-1-69	Reaction Fugitives (4)	VOC	0.3	1.32
7-1-70	Extraction Fugitives (4)	VOC	0.3	1.32
7-1-71	Caprolactam Rail Loading	VOC	0.01	<0.001
7-1-73	SO ₂ Scrubber	SO ₂	2.76	12.07
	NH ₃	0.29	1.27	
7-1-74	Ammonium Sulfate Loading	PM	0.01	0.04
7-1-75	Kettle Dump	VOC	0.06	0.18
7-1-79	Storage Tank	VOC	0.30	0.004
7-1-80	Storage Tank	VOC	0.30	0.004
1-1-Barge	Capro Barge Loading	VOC	<0.01	<0.01
14-1-1	Ammonium Sulfate Loading	PM	0.01	0.004
14-1-4	Oxime Separator	VOC	0.51	<0.01
14-1-5	Oxime Separator	VOC	1.02	0.01
14-1-6	Overhead Separator	VOC	0.01	<0.01
14-1-8	Lactam Separator	VOC	<0.001	<0.001

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
14-1-10	Purge Drums	VOC	1.90	6.30
14-1-11	Overhead Drum	VOC	<0.01	<0.01
14-1-12	Centrifuge Feed Tank	VOC	0.027	<0.001
14-1-13	Centrifuge Feed Tank	VOC	0.027	<0.001
14-1-16	Storage Tank	VOC	0.027	0.002
14-1-18	Hot Well Tank	VOC	0.057	0.25
14-1-20	Hot Well Tank	VOC	<0.01	<0.01
14-1-21	Hot Well Tank	VOC	<0.01	<0.01
14-1-22	Hot Well Tank	VOC	<0.01	<0.01
14-1-23	Hot Well Tank	VOC	<0.01	<0.01
14-1-25	Oxime Storage Drum	VOC	1.48	0.012
14-1-26	Storage Drum	VOC	0.59	<0.01
14-1-27	Crude Lactam Storage	VOC	0.029	0.008
14-1-29	Extract Storage	VOC	0.007	0.01
14-1-30	Extract Storage	VOC	0.007	0.001
14-1-31	Extract Storage	VOC	0.66	1.44
14-1-32	Storage Tank	VOC	0.54	<0.01
14-1-35	Extract Storage	VOC	1.04	0.01

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
14-1-36	Foreruns Receiver	VOC	0.76	0.026
14-1-37	Lights Storage	VOC	0.10	0.008
14-1-38	Kettle Feed Drum	VOC	0.25	0.029
14-1-39	Kettle Overheads	VOC	0.61	0.02
14-1-40	Mother Liquor Storage	VOC	0.42	0.002
14-1-41	Mother Liquor Receiver	VOC	0.01	<0.001
14-1-44	Water Storage	VOC	<0.001	<0.001
14-1-45	Concentrated Storage	VOC	4.69	0.10
14-1-46	Oxime Salt Storage	VOC	1.21	0.002
14-1-47	Mother Liquor Storage	VOC	0.62	0.004
14-1-52	Storage Drum	VOC	<0.01	<0.01
14-1-55	Drying Tower	VOC	0.01	0.046
14-1-56	Foreruns Tower Receiver	VOC	0.01	0.046
14-1-57	Finishing Tower	VOC	0.01	0.046
14-1-58	E-511	VOC	0.01	0.046
14-1-60	D-431	VOC	0.02	0.092
14-1-61	Kettle	VOC	0.01	0.046
14-1-62	E-600a	VOC	0.01	0.046

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY(5)
14-1-63	E-600b	VOC	0.01	0.046
14-1-64	E-720	VOC	0.01	0.046
14-1-65	T-130	VOC	<0.001	0.003
14-1-67	Pre-Drying Tower	VOC	0.01	0.046
14-1-68	Caprolactam Loading	VOC	0.45	1.03
14-1-69	Scrubber	PM	1.17	5.12
		VOC	4.98	21.81
14-1-70	Vacuum Jet	VOC	0.01	0.046
14-1-73-01	Oximation Fugitives (4)	VOC	0.20	0.87
14-1-73-02	Anone Recovery Fugitives (4)	VOC	0.20	0.87
14-1-73-03	Caprolactam Fugitives (4)	VOC (Benzene)	0.20	0.87
14-1-73-04	Benzene Fugitives (4)	VOC (Benzene)	0.20	0.87
14-1-73-05	Fugitives (4)	NH ₃	0.136	0.60
14-1-75	Benzene Crude Scrubber	VOC (Benzene)	0.75	3.29
14-1-76	SO ₂ Scrubber	SO ₂	2.76	12.07
		NH ₃	0.29	1.27
14-1-77	Oleum Scrubber	SO ₃ /H ₂ SO ₄	<0.001	0.003
14-1-78	Overhead Drum	VOC	0.95	0.32
14-1-80	Check Tank	VOC	<0.01	<0.01

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			lb/hr	TPY(5)
14-1-81	Check Tank	VOC	<0.01	<0.01
14-1-83	Caprolactam Loading	VOC	0.002	<0.001
14-1-85	Extract Storage	VOC	0.21	0.05
14-1-86	Kettle Dump Trailer	VOC	0.067	0.294
14-1-87	Hot Well Tank	VOC	0.01	0.046
14-1-88	Hot Well Tank	VOC	0.01	0.046
14-1-89	Hot Well Tank	VOC	<0.01	0.01
14-1-90	Extraction Tower Bottoms	VOC	<0.001	<0.01

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.

(2) Specific point source name. For fugitive sources use area name or fugitive source name.

(3) PM - particulate matter, suspended in the atmosphere, including PM₁₀.

PM₁₀ - particulate matter equal to or less than 10 microns in diameter. Where PM is not listed, it shall be assumed that no particulate matter greater than 10 microns is emitted.

VOC - volatile organic compounds as defined in 30 Texas Administrative Code Section 101.1

NO_x - total oxides of nitrogen

CO - carbon monoxide

SO₂ - sulfur dioxide

SO₃ - sulfur trioxide

H₂SO₄ - sulfuric acid

NH₃ - ammonia

(4) Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate.

(5) Annual emissions are based on a rolling 12-month average.

* Emission rates are based on and the facilities are limited by the following maximum operating schedule:

Hrs/day 24 Days/week 7 Weeks/year 52 or Hrs/year 8,760

Dated August 20, 2001