

Rolling 12 Months

EUID	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Rolling12 month	Annual(Jan-Dec)	Permit Limit	Working Loss Emissions (lbs)	
<b>Resin Production</b>													Totals				
lbs/mth	1,132,713	1,645,793	1,530,367	2,025,716	1,654,474	1,620,802	1,398,478	1,325,076	1,290,431	1,222,713	1,483,548	1,225,927	1,463,003				
lbs/yr													17,556,037	17,556,037	142,500,000	pounds	
<b>Storage Tanks (in gallons)</b>																	
2 ST-403A Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
2 ST-403B Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
2 ST-404A Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
2 ST-404B Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
2 ST-402 Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
2 ST-407 Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
2 ST-408 Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
2 ST-904 Resin or MMA	9,617	14,479	14,194	18,414	18,281	14,117	15,056	12,475	15,008	17,029	16,376	12,467					
2 ST-905 Resin or MMA	18,530	27,824	28,510	38,202	37,118	29,976	30,261	27,742	36,764	35,113	41,160	32,757					
2 ST-906 Resin or MMA	13,492	18,138	20,093	24,336	17,682	19,104	16,588	7,918	6,947	2,485	5,232	4,633					
2 ST-913 Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
2 ST-917 Resin or MMA	1,000	1,849	1,528	640	375	1,894	1,609	8,208	1,609	0	0	0					
7 ST-401 Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
7 ST-908 Resin or MMA	18,530	27,824	28,510	38,202	37,118	29,976	30,261	27,742	36,764	35,113	41,160	32,757					
7 ST-914 Resin or MMA	7,548	14,597	10,354	21,310	6,975	9,370	11,642	4,523	4,432	2,903	4,917	3,439					
7 ST-915 Resin or MMA	3,733	4,562	5,452	5,015	3,000	10,888	2,315	2,315	1,960	12,111	8,297	8,038					
7 ST-916 Resin or MMA	13,492	18,138	20,093	24,336	17,682	19,104	16,588	7,918	6,947	2,485	5,232	4,633					
Total Storage Tank Throughput	85,943	127,410	128,735	170,454	138,231	134,429	124,322	98,841	110,430	107,238	122,373	98,724	1,447,129	1,447,129	17,500,000	gallons 690	
2 ST-405 Styrene	7,290	11,067	11,454	14,621	12,357	11,716	10,441	8,213	9,726	9,260	10,722	8,299					
2 ST-406 Styrene	7,290	11,067	11,454	14,621	12,357	11,716	10,441	8,213	9,726	9,260	10,722	8,299					
Total Styrene Storage Tank	14,580	22,134	22,908	29,242	24,714	23,431	20,882	16,426	19,452	18,519	21,444	16,599	250,330	250,330	8,000,000	gallons 119	
3 TT-100 Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
3 TT-200 Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
3 BT-901 Resin or MMA	25,094	35,582	32,837	45,035	39,299	32,480	31,428	29,257	28,243	27,536	35,978	28,130					
3 BT-902 Resin or MMA	25,094	35,582	32,837	45,035	39,299	32,480	31,428	29,257	28,243	27,536	35,978	28,130					
3 BT-903 Resin or MMA	25,094	35,582	32,837	45,035	39,299	32,480	31,428	29,257	28,243	27,536	35,978	28,130					
3 BT-907 Resin or MMA	25,094	35,582	32,837	45,035	39,299	32,480	31,428	29,257	28,243	27,536	35,978	28,130					
3 BT-961 Resin or MMA	1,255	1,779	1,642	2,252	1,965	1,624	1,571	1,463	1,412	1,377	1,799	1,406					
3 BT-962 Resin or MMA	12,547	17,791	16,418	22,518	19,650	16,240	15,714	14,628	14,121	13,768	17,989	14,065					
3 BT-963 Resin or MMA	25,094	35,582	32,837	45,035	39,299	32,480	31,428	29,257	28,243	27,536	35,978	28,130					
3 BT-909 Resin or MMA	0	0	0	0	0	0	0	0	0	0	0	0					
3 BT-910 Resin or MMA	25,094	35,582	32,837	45,035	39,299	32,480	31,428	29,257	28,243	27,536	35,978	28,130					
3 BT-911 Resin or MMA	12,547	17,791	16,418	22,518	19,650	16,240	15,714	14,628	14,121	13,768	17,989	14,065					
3 Total Blend Tank Throughput	176,914	250,852	231,500	317,497	277,058	228,983	221,571	206,262	199,111	194,127	253,648	198,316	2,755,839	2,755,839	24,250,000	gallons 1,315	
4 Product Loading	125,857	182,866	170,041	225,080	183,830	180,089	155,386	147,231	143,381	135,857	164,839	136,214	1,950,671	1,950,671	15,833,000	gallons 931	

Styrene is the primary VOC and only HAP. All emissions are reported as styrene.

Total Working Loss Emissions =

Total Breathing Loss Emissions =

Total Emissions =

All emissions are based on styrene (only HAP)

Loading Losses (lbs per 1000 gal loaded) =  $12.46 * S * P * M / T$

S = splash fill = 1.45  
 P = Vapor pressure for styrene = 0.1369 psia  
 M = molecular weight for styrene = 104.15  
 T = Temperature in Rankine = 540 R

Loading loss = gal \*  $(12.46 * 1.45 * 0.1369 * 104.15 / 540)$   
 = gal/100 \* 0.47704

Breathing losses for storage tanks (These emissions will not change unless the tanks are changed)

Tank	ST-405	ST-406	ST-908	ST-913	ST-914	ST-915	ST-916	ST-917	ST-904	ST-905	ST-906
Contents	Styrene	Styrene	Styrene Resin	Styrene Resin	Styrene Resin	Styrene Resin	Styrene Resin	Styrene Resin	Styrene Resin	Styrene Resin	Styrene Resin
Diameter	12	12	12.5	8	12	12	12	8	13	13	13
Shell Height	18	18	32	13	17	17	17	20	20	20.5	20.5
Avg. Liquid Height	9	9	16	6.5	13.5	13.5	13.5	10	10	10	10
Vapor Space Expansion Factor	0.1185	0.1185	0.1185	0.1185	0.1185	0.1185	0.1185	0.1185	0.1185	0.1185	0.1185
Vapor Pressure (psia)	0.1369	0.1369	0.1369	0.1369	0.1369	0.1369	0.1369	0.1369	0.1369	0.1369	0.1369
Vented Vapor Saturation Factor	0.5344	0.5344	0.3924	0.6138	0.5486	0.5486	0.5486	0.5082	0.5082	0.5020	0.5020
Vapor Space Outage	21.006	21.006	37.344	15.171	14.839	14.839	14.839	23.34	23.34	24.1735	24.1735
Molecular Weight	104.15	104.15	104.15	104.15	104.15	104.15	104.15	104.15	104.15	104.15	104.15
Liquid Temperature	532.33	532.33	532.33	532.33	532.33	532.33	532.33	532.33	532.33	532.33	532.33
Vapor Density	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Vapor Space	2,375.72	2,375.72	4,582.80	762.58	1,678.25	1,678.25	1,678.25	1,173.20	3,097.97	3,208.60	3,208.60
Breathing Losses (lbs/year)	137.07	137.07	194.12	50.53	99.40	99.40	99.40	64.36	169.95	173.88	173.88
Total Annual Breathing Losses	1,399.08 lbs 0.700 tons										

As tanks are converted from glycol to styrene based materials, add tank data, and add to total breathing losses.

### Working Loss Emissions

	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Rolling 12 Month (lbs)	Rolling 12 Month (ton)	Current Year (Jan-Dec) (lbs)	Current Year (Jan-Dec) (ton)
<b>Total Storage Tank Throughput</b>	41	61	61	81	66	64	59	47	53	51	58	47	690	0.35	690	0.35
<b>Total Styrene Storage Tank</b>	7	11	11	14	12	11	10	8	9	9	10	8	119	0.06	119	0.06
<b>Total Blend Tank Throughput</b>	84	120	110	151	132	109	106	98	95	93	121	95	1,315	0.66	1,315	0.66
<b>Product Loading</b>	60	87	81	107	88	86	74	70	68	65	79	65	931	0.47	931	0.47
<b>Total Working Loss</b>	<b>192</b>	<b>278</b>	<b>264</b>	<b>354</b>	<b>298</b>	<b>270</b>	<b>249</b>	<b>224</b>	<b>225</b>	<b>217</b>	<b>268</b>	<b>215</b>	<b>3,055</b>	<b>1.53</b>	<b>3,055</b>	<b>1.53</b>

Styrene is the primary VOC and only HAP. All emissions are reported as styrene.

Total Emissions = Total Working Loss Emissions + Total Breathing Loss Emissions

Total Breathing Loss per year (tons) = 0.700

Total Emissions Summary			
	Per Permit	Rolling 12-Month Actual	Current Year (Jan-Dec)
<b>VOCs per year (ton)</b>	24.90	2.23	2.23
<b>Any single HAP per year (ton)</b>	9.90	2.23	2.23
<b>Total HAP per year (ton)</b>	15.46	2.23	2.23