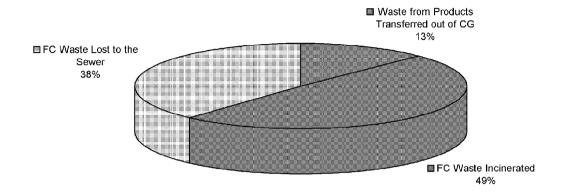
Current CG FC Waste Status (221272 lbs./yr as of 8/21/00)



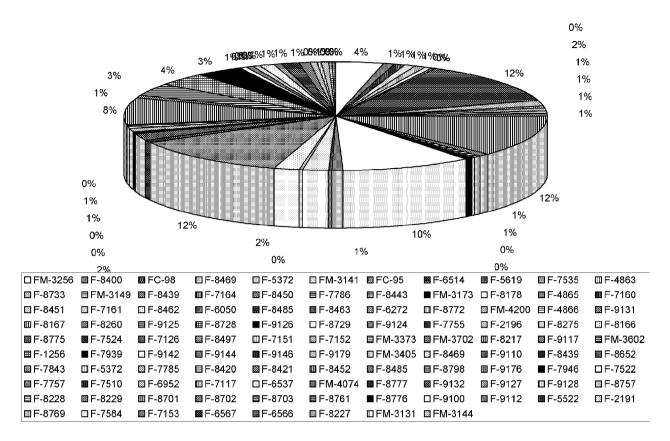
Made Available by 3M for Inspection and Copying as Confidential Information: Subject to Protective Order In Palmer v. 3M, No. C2-04-6309

3MA00043765

Exhibit 1735

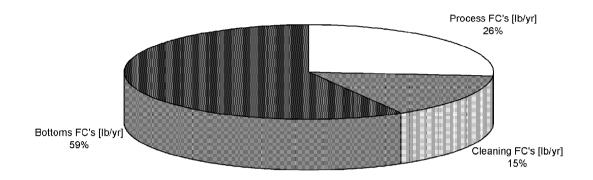
State of Minnesota v. 3M Co., Court File No. 27-CV-10-28862

FC Waste Distribution



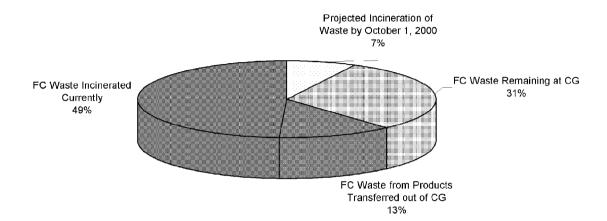
Made Available by 3M for Inspection and Copying as Confidential Information: Subject to Protective Order In Palmer v. 3M, No. C2-04-6309

FC Waste by Type



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Projected Results by October 1, 2000 (Phase I Complete)



Made Available by 3M for Inspection and Copying as Confidential Information: Subject to Protective Order In Palmer v. 3M, No. C2-04-6309

					Total FC Waste	FC Waste Reduced						
FM-5266 31 96774 31 40321 3760 22 22 15 34 FM-5260 8 9895 8 34960 37600 12 22 21 15 34 FM-5260 8 9895 8 34960 37600 12 12 50 25 8748 FM-5260 9 6 98000 6 20750 20251 12 50 25 8748 FM-5260 9 6 98000 6 20750 20251 12 50 25 8748 FM-5272 8 7442 8 12150 9 5 65 15 46 FM-5272 8 7442 8 12150 9 5 65 15 46 FM-5272 8 12000 14 9763 9505 4 69 15 33 FM-5260 14 100 27000 160 9200 4 9763 9505 4 74 25 8749 FM-5264 100 27000 160 9200 4 9763 9505 4 74 25 8749 FM-5264 100 27000 160 9200 4 9763 9505 4 74 25 8749 FM-5264 100 27000 160 9200 16 919 8019 3 81 15 33 FM-5264 15 80500 15 6035 15 8050 15				lots/vr	[lb FC	[lb FC	%	Т%	Blda.	BC	Total Waste	% FC in Waste
F-8-00 8 36886 8 34586 25969 16 38 15 33 F-8-689 6 38000 7 26755 26221 12 50 25 2744 F-8489 6 38000 8 22750 29 19 15 45 F-5372 8 71442 8 12150 20 5 65 15 45 F-5314 4 13350 4 9935 4 69 15 33 F-6414 160 276000 106 9200 4 76 15 33 F-8489 27030 6619 6619 3 84 15 33 F-7323 15 60500 15 6032 6003 3 84 15 33 F-8493 7 25000 7 5488 2 89 15 45 F-94510 8 25900 7 350	FM-3256										1356129	4%
FC-88												
F-5972	FC-98	7	35000	7	26755	26221	12	50		87/49	198989	13%
FM-3141	F-8469	6	36000	6	20750	20750	9	59	15	45	539936	4%
F-0.96		8		8	12150		5	65			284952	#REF!
F-6544 106							_	$\overline{}$				
F-849						9558					161764	6%
F-7655		106		106		0040					249200	4%
F-4883 5		4.5		45		6919					42500	16%
F-8733 7 7 72000 7 5488 2 2 88 15 49 15 33 F-8439 7 25000 7 3500 2 99 15 33 F-8439 7 25000 7 3500 2 99 3 70 F-7164 106 31/400 106 3356 3358 2 94 15 32 F-8460 8 26000 8 2631 1 95 5 F-7766 5 24000 5 1920 1 98 3 70 F-71766 5 24000 5 1920 1 98 3 70 F-71766 1 98 3 70 F-7176 1 98 3 F-7176						5000					189245	3%
FM-3149 7 22936 7 4281 2 91 15 33 70 F-8439 7 25000 7 3500 2 92 3 70 F-7164 106 317400 108 3356 3358 2 94 15 32 F-8450 8 26000 8 2631 1 97 15 32 F-7766 5 2 24000 5 1920 1 96 3 70 F-8443 2 3260 2 1823 1 97 1 97 1 97 1 97 1 97 1 97 1 97 1 9				_		3000					109243	370
F-8439							_					
F-7164 106 371/407 106 3356 3356 2 94 15 32 F-8450 8 29800 8 2631 1 1 95 F-7786 5 24000 5 1520 1 96 3 70 F-8443 2 3260 2 1623 1 1 97 5 F-8443 2 3260 2 1623 1 1 97 15 33 F-8178 88 740000 88 1480 1 1 99 F-8485 6.5 48800 7 1073 0 99 25 67 F-7160 2 10100 2 864 0 99 7 33 F-8485 6.5 48800 17 660 680 0 99 7 33 F-8451 17 28600 17 660 680 0 99 15 32 F-8461 17 28600 17 660 680 0 99 15 32 F-8462 17 95000 397 0 15 36 F-8485 17 146000 143 0 0 15 36 F-8485 17 146000 143 0 0 15 36 F-8485 17 146000 1443 0 0 15 36 F-8486 17 92000 2 276 0 15 36 F-8485 17 146000 1443 0 0 15 36 F-8486 17 92000 2 276 0 0 1525 4574 F-8727 2 13444 98 0 0 7 70 F-8167 6986 6 73955 0 0 0 25 87 70 F-8167 699 62800 0 0 7 7 70 F-8167 699 62800 0 0 7 7 70 F-8167 699 62800 0 0 0 7 7 70 F-8167 699 62800 0 0 7 7 70 F-8260 8 37360 0 0 7 7 70 F-8260 8 37360 0 0 7 7 71 71 71 71 71 71 71 71 71 71 71 71		-		-							301620	1%
F-8450				-		3356					001020	170
F-8443							_	$\overline{}$				
FM-3173							1	96	3	70	138355	1%
F-8178		2		2			1	97				
F-4865							1		15	33	62116	2%
F-7160												
F-8461							-				151710	1%
F-7161							_					
F-8462 17 95000 397 0 15 36 F-6050 106 658619 300 0 15 36 F-6055 7 92000 276 0 15/25 45/74 F-8483 17 148000 143 0 15/25 45/74 F-8483 17 148000 36 0 15/25 45/74 F-8772 2 13444 98 0 0 F-8772 3 19000 36 0 0 FM-4200 10 145313 0 0 7 7 70 F-866 6 73955 0 0 0 25 87 F-9131 3 15000 0 0 0 7 70 F-8167 69 62600 0 0 0 0 6 61 F-8260 8 37360 0 0 7 41 F-8728 35 22750 0 0 7 41 F-8728 35 22750 0 0 7 41 F-8729 6 22600 0 0 0 7 33 F-9124 3 40000 0 0 7 7 33 F-9124 3 40000 0 0 7 7 33 F-9124 3 40000 0 0 7 24 F-8729 6 22650 0 0 0 0 7 24 F-8775 5 2 10793 0 0 0 7 24 F-8775 5 103532 0 0 0 0 0 0 7 7 24 F-87875 1 103532 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							<u> </u>		15	32		
F-6050 106 658619 300 0 15 36 F-8485 7 92000 276 0 15/25 45/74 F-8486 17 92000 276 0 15/25 45/74 F-8486 17 148000 143 0 0 15/25 45/74 F-8772 2 13444 98 0 0 F-8772 3 18000 36 0 0 7 70 F-8772 3 18000 0 0 0 7 70 F-8486 6 73955 0 0 0 25 87 F-9131 3 15000 0 0 0 0 7 70 F-8167 69 62600 0 0 0 0 7 70 F-8167 69 62600 0 0 0 0 7 70 F-8167 69 62600 0 0 0 0 7 7 70 F-8167 69 62600 0 0 0 0 7 7 141 F-8728 35 22750 0 0 0 7 7 41 F-8728 35 22750 0 0 0 7 7 41 F-8728 35 22750 0 0 0 7 7 42 F-8729 6 22650 0 0 0 7 7 24 F-7755 2 10793 0 0 0 7 7 24 F-7755 2 10793 0 0 0 0 7 7 24 F-8729 6 226362 0 0 0 0 0 0 7 7 24 F-8736 10 113244 0 0 15 52 F-8167 6 10 113244 0 0 15 52 F-8175 5 103532 0 0 15 51 F-7524 10 87319 0 15 27 F-8897 3 21625 0 0 15 51 F-7126 9 37115 0 0 15 27 F-8897 3 21625 0 0 15 54 F-9117 F-9117 F-9117 F-9117 F-91379 0 15 54 F-9117 F-9138 10 0 15 59 F-9147 F-9147 F-9147 F-9147 10 0 15 59 F-9147 F-9148 904 F-9149 0 0 7 7 42 F-9147 F-9147 F-9147 F-9147 F-9148 904 F-9149 0 0 7 7 42 F-9144 904 F-9149 0 0 F-8248 904 F-9149 F-				2		432	_	99	45	00		
F-8485							-					
F-8463 17 148000 143 0 0 F-6272 2 13444 98 0 0 F-6272 3 18000 36 0 0 F-8712 3 18000 36 0 0 F-8712 3 18000 36 0 0 F-8712 3 18000 36 0 0 F-8713 3 15000 0 0 0 7 70 70 F-866 6 73955 0 0 0 25 87 F-9131 3 15000 0 0 0 0 7 70 70 F-8167 69 62600 0 0 0 0 7 70 70 F-8167 69 62600 0 0 0 0 7 31 F-8167 69 62600 0 0 0 0 7 31 F-8126 30 22800 0 0 0 7 41 F-8728 35 22750 0 0 0 7 41 F-8728 35 22750 0 0 0 7 41 F-8728 35 22750 0 0 0 7 42 F-8729 6 22750 0 0 0 7 42 F-8729 6 22750 0 0 0 7 7 42 F-8729 6 22750 0 0 0 7 7 44 F-9126 30 9600 0 0 0 7 7 42 F-8729 6 2 10793 0 0 F-2196 4 5470 0 4 10 F-8275 7 226362 0 0 25 87 F-8166 10 113244 0 0 15 52 F-87524 10 87319 0 15 52 F-87524 10 87319 0 15 52 F-8749 3 21625 0 0 15 51 F-7524 10 87319 0 15 27 F-88497 3 21625 0 0 15 33 F-7151 3 21361 0 0 15 33 F-7151 3 21361 0 0 15 54 F-8877 F-8817 0 0 F-8817 F-8817 0 0 F-8817 0 0 F-8817 F-8817 0 0 F-8817 F-9117 0 0 F-8817 F-9117 F-8817 0 0 F-8917 F-9117 F-8917 0 F-9117 F-9144 904 0 6 6 44 F-9144 904 0 6 6 44 F-9146 F-9179 F-9144 904 0 6 6 44 F-9146 F-9179 F-9146 0 0 F-8469 8655 0 0 15 45 F-9110 5650 0 15 45 F-9110 5650 0 0 15 45 F-9110 5650 0 0 15 45 F-9110 5650 0 0 15 545 F-91												
F-6272									13/23	45)14		
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F-7126 9 37115 0 15 27 F-8497 3 21625 0 15 33 F-7151 3 21361 0 15 33 F-7152 5 20722 0 15 54 FM-3373 2 14877 0 15 59 FM-3702 939 0 15 59 F-8217 0 15 59 F-8217 0 0 15 59 FM-3602 0 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>М</td><td></td><td></td><td></td><td></td></td<>								М				
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F-7151 3 21361 0 15 33 F-7152 5 20722 0 15 54 FM-3373 2 14877 0 15 59 FM-3702 939 0 15 69 F-8217 0 0 6 F-9117 0 0 6 F-9117 0 0 6 F-7939 2506 0 7 42 F-9142 1175 0 7 42 F-9144 904 0 6 44 F-9146 0 0 6 44 F-9179 0 0 15 45 F-8469 8655 0 15 45 F-9110 5850 0 15 45							0			27		
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F-9117 0 5 FM-3602 0 6 F-1256 3 205 0 6 F-7939 2506 0 7 42 F-9142 1175 0 7 42 F-9144 904 0 6 44 F-9146 0 6 44 F-9179 0 0 7 FM-3405 0 0 15 45 F-9110 5850 0 15 45			১১৪				_	\vdash	15	59		
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F-9110 5850 0 15 45												
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F-8439 2950 0 15 70												
F-8652 850 0 7 41 F-7843 0 15 45			850				_					

Process FC's [lb/yr]	Cleaning FC's [lb/yr]	Bottoms FC's [lb/yr]	Total Water [lb/yr]	Process Water [lb/yr]	Cleaning Water [lb/yr]	Bottoms Water [lb/yr]	Scrubber & jet water [lb/yr]
13312	0	37860	837132	0	652286	184846	9672000
84	8335	25959	6035	0	6035	0	2496000
26221	535	0	321481	232950	88531	0	0
0	1750	19000	309511	0	225511	84000	1872000
0	1150	11000	292656	0	91000	201656	2496000
41	122	9853	32000	ō	20000	12000	1248000
9558	195	0	142496	36416	106080	0	0
0	4007	Ö	396693	0	396693	0	0
	4007	· · · · · · · · · · · · · · · · · · ·	330000		330033		
0	6035	0	331965	0	331965	0	0
					183989		1560000
0	1031	5000	183989	0		0	
0	675	4813	136537	0	58350	78187	2184000
4196	86	0	73394	56370	17024	0	0
0	3500	0	110750	0	110750	0	0
0	0	3356	0	0	0	0	33072000
191	1619	799	336525	190992	145533	0	2496000
0	1920	0	138040	0	138040	0	
0	0	660					
0	0	432					
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"P" Process FC's per Lot	"P" Rank	"C" Cleaning FC's per Lot	"C" Rank	"B" Bottoms FC's per Lot		Process Water per FC Waste	Cleaning Water per FC Waste	Waste
429	4	0		1221	5	0		4.88
11		1042	1	3245	1	0	0.72	0
3746	1	76		0		8.88	165.48	
0		292	4	3167	2		128.86	4.42
0		144	7	1375	4		79.13	18.33
			,	2463		_	19.13	
10		31			3	0	163.93	1.22
2389	2	49		0		3.81	544.00	
0		38		0			99.00	
0		402	3	0			55.01	
0		206	5	1000	6		178.46	0
0		96	8	688	7		86.44	16.24
599	3	12		0		12.11	197.95	10.24
	<u> </u>					13.44	197.95	
0		500	2	0			31.64	
0		0		32				0
24		202	6	100	8	999.96	89.89	0
		 						
				 				
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F-5372				0				
F-7785				0				
F-8420				0				
F-8421				0				
F-8452				0				
F-8485				0				
F-8798				0				
F-9176				0				
F-7946	267448			0	4	8		
F-7522	54600			0	4	7		
F-7757	5713			0	6	17		
F-7510	5710			0	4	10		
F-6952	28463			0	15	36		
F-7117	10468			0	15	32		
F-6537	9420			0	15	37		
FM-4074				101				
F-8777	8245			10	7	70		
F-9132	8090			101	15	33		
F-9127	4121			101	7	41		
F-9128	3541			10	7	41		
F-8757	2770			10	4	10		
F-8228				1 0	<u> </u>	 		
F-8229				1 0				+
F-8701				1 0				
F-8702				0				
F-8703				1 0				
F-8761				0				
F-8776				1 0				+
F-9100				 				
F-9112				 0				+
F-5522	4959			10	7	42		
F-2191	4407			1 0	25	87		
F-8769	36755			0	25	87		+
F-7584	30,00			1 0		 "		+
F-7153	2906			 	4	10		
F-6567	1570			1 0	15	51		
F-6566				1 0	- 	 • • • • • • • • • • • • • • • • • • •		+
F-8227				0		 		+
FM-3131				0				+
FM-3144				10				
				+ $+$				+
				+ +		1		+
				+ +				+
Totals		221272	136715	+ +				+
%		38.2	61.8	+ +				+
% with				+ +				+
scrubber								
						1	l	

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			ļ				-
							+
53602	30960	118732	3649204	516728	2571787	560689	57096000
24	14	54		14	70	15	
4	14	J		1**	10	10	1
			60745204	1	4	1	94

Incinerated/transferred Negligble

		FC Waste	Projected	Projected Waste
Transferred Waste	Waste Incinerated	Remaining	Incineration	Remaining
27669.0	109046	84557	16612	67945
13	49	38		

							Total FC	Ι		
			Base FC (POSF,	Cleaning method (causitc,	Demand	Demand	Waste [lb FC			FC's lost to the sewer
Product	Name	Engineer	C8 Acid, etc.)	sulfuric, etc.)	[lots/yr]	[lb/yr]	waste/yr]	%	Т%	[lb/yr]
FM-3256	C8 acid fractionation	DG	C8 Acid	Caustic and Water	31	296774	49321	22	22	49321
F-8400	fractionated PECHSF (FC-98)	KIH	PECHSF	caustic	8	36985	34366	16	38	8407
1 0100	indoubliated i Delifer (i e ce)	Tarr	1 201101	oddollo	•	00000	0.1000	اٽ		0 107
FC-98	EC 09 reaction and drying	KIH	PECHSF	caustic	7	35000	26755	12	50	26755
FC-90	FC-98 reaction and drying	NIFI	FEGRSF	caustic	,	33000	20733	12	30	20/33
F-8469	HQ115 reaction	BLH	PMSF	Butyric, water	6	36000	20750	9	59	20750
				• .						
F-5372	FC-24	BLH	C1, PMSF Acid	Butyric, water	8	71 44 2	12150	5	65	12150
FM-3141	Distilled EBSF (FC-98)	KIH	EBSF	caustic	4	13350	9935	4	69	8155
FC-95	FC-95 reaction and drying	KIH	POSF	caustic	4	19200	9753	4	74	9753
F-6514	C8 acid powder	DG	C8 Acid	water	106	276000	9200	4	78	4007
F-5619	Base stabized butyric acid (FC-23)	KIH	PBSF	caustic		27030	6919	3	81	
F-7535	Dry Lithium Salt for FC-24/28	BLH	PMSF Lithium salt	water	15	60500	6035	3	84	6035
F-4863	Distilled PDSF (FC-120)	KIH	PDSF	caustic	5	50260	6030	3	86	1031
	,									
F-8733	Acid Hydrate Distill FC-156	BLH	PMSF	water	7	72000	5488	2	89	5488
1-0/33	Add Hydrate Distill 1 0-100	DLII	1 WIGH	water	,	72000	3400	É	00	3400
FM-3149	Caudo EBSE (EC 09)	KIH	EBSF	caustic	7	22935	4281	2	91	4281
FIVI-3149	Crude EBSF (FC-98)	NIH	PMSF Lithium imide			ZZ935	4281	É	91	4281
F-8439	HQ115 drying	BLH	salt	water	7	25000	3500	2	92	3500
F-7164	One Plated C8 Acid for FC-143/118	DG	C8 Acid	none	106	317400	3356	2	94	0

Description and Composition of sewered waste [Process step(lb/yr,composition)]	FC's lost to the air [lb/yr]	Description and Composition of air emissions [Process step(lb/yr,composition)]	FC's incinerated [lb/yr]	Description and Composition of incinerated waste [Process step(lb/yr,composition)]
222706 lbs/yr total waste is produced from fractionation bottoms. Of this 17% are FCs and 83% is water, sulfuric acid and filter cell. 665598 lbs/yr				
total waste is produced from cleaning. Of this 2% are FCs and 98% is water and sodium hydroxide.	0	any lowboilers lost out of the vacuum system will be condensed and sent to the sewer through the hot well.	0	Based on the material from Decatur, no amount is predicted since the amount todate is zero.
Distillation(?,>99% water,<1% FC's (84 lb/yr));Cleanup(14371 lb/yr, 42% water, 58% FC's)	negligible	Charging, Distillation, Draining	25959	Bottoms(25959 lb/yr, 100% FC's)
Water washes/filtration (189,286 lb/yr, 86% water, 14% FC's);Cleaning(89066 lb/yr, 99.4% water, 0.6% FC's)	negligible	Charging, Draining	none	
Bottoms(103,000 lb/yr, 81.6% water, TEA, H2SO4, LIOH, Li Carbonate, 18.4% FC's);Clean-up (227,261 lb/yr, 99% water, TEA, H2SO4, LIOH, Li Carbonate, 1% FC's)	negligible			
Bottoms(212656 lb/yr, 94.8% water LiHSO4. LixSO4.H2SO4, SiO2, 5.2% FC's);Clean-up (92150 lb/yr, 98.75% water, LiHSO4, LixSO4,H2SO4, SiO2, 1.25% FC's)	negligible			
Distillation (?, <1% FC's, < 41 lb/yr FC's); Clean-up (20122 lb/yr, 99.4% water, 0.4% FC's); Bottoms (19992 lb/yr, 60% water, 40 % FC's)	negligible	Charging, Distilling, Draining	1780	Bottoms(1780 lb/yr, 100% FC's)
Water washes/filtration (145973 lb/yr, 93% water, 7% FC's); Cleaning (106275 lb/yr, 99.8% water, 0.6% FC's)	negligible	Charging, Draining	none	
This is based on theoretical powder yields calculated for Lots 194-199 & 10001-10012. 30% of the total powder losses are assumed to end up in the sewer system. The total amount of waste to the sewer is estimated to be 400700 lbs/yr. Of this 99% is water.	73405	This is based on inert balances for lots 194-199 & 10001-10012		
Clean-up (338000 lb/yr, 98.2% water, 1.8% FC's)	negligible			
Distillation(?,>99% water,<1% FC's (258 lb/yr));Cleanup(183989 lb/yr, 99.6% Water, 0.4% FC's)	negligible	Charging, Distillation	5000	Bottoms(5000 lb/yr, 100% FC's)
Bottoms (63,000 lb/yr, 94.2% water H2SO4, Li2SO4, 5.8 % FC's); Clean-up (59,025 lb/yr, 98.9% water H2SO4, Li2SO4, 1.1 % FC's)				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Water washes/phase splits (60566 lb/yr, 93% Water, 7% FC's);Clean-up (17110 lb/yr, 99.5% Water, 0.5 % FC's)	negligible	Charging, Draining	none	
Clean-up (114,250 lb/yr, 96.9% water, 3.1% FC's)	negligible			24422
This reactor is almost never cleaned.	0		3356	61163 lbs/yr of total waste are produced from distillation bottoms. Of this 5.5% are FCs and 94.5% being sulfuric acid, potassium dichromate, and filter cell.

Bldg.	ВС	Total Waste [lb waste/yr]	% FC in Waste
15	34	1356129	4%
15	33		
25	87/49	198989	13%
15	4 5	539936	4%
10	40	333303	470
15	4 5	284952	#REF!
15	33		
25	87/49	161764	6%
45	37	240200	40/
15 15	37 33	249200 42500	4% 16%
15	70		
15	33	189245	3%
15	45		
15	33		
3	70	301620	1%
15	32		

F-8450	RC8 Acid from RC8 NH3 Salt	DG	C8 Acid	Caustic and Water	8	29600	2631	1	95	2631
F-7786	FC-122	BLH	PMSF Lithium salt	water	5	24000	1920	1	96	1920
F-8443	N-Ethyl Fosea monomer, FX-13	JPS	POSF	Acetone	2	3260	1823	1	97	1800
FM-3173	fractionated butyric acid (FC-23)	KIH	PBSF	caustic	4	28492	1500	1	97	1500
F-8178	20% Aq Ammonium Salt (FC-118)	DG	C8 Acid	None	88	740000	1480	1	98	1480
1-0170	20% Ad All Mondain Gait (1 0-110)	23	OU ACIU	None	- 00	7-0000	1400	_	30	1400
F-4865	C10 sulfonic acid (FC-120)	KIH	PDSF	caustic	6.5	46800	1073	0	99	1073
F-7160	MeFOSEMA decolorization	JPS	POSF	Acetone, water flush	2	10100	664	0	99	664
F-8451	One Flated Programmed On Avid	DG	00.4 -14		47	28600	660	0		0
	One-Plated Recovered C8 Acid		C8 Acid	none	17				99	
F-7161	Methyl FOSEMA reaction	JPS	POSF	Acetone	2	7800	432	0	99	0
F-8462	Recovered C8 - 35% NH3 Salt	DG	C8 Acid	Acetic Acid	17	95000	397	0		397
F-6050	FC-118/143 Ammonium Salt Slur	DG	C8 Acid	Acetic Acid	106	658619	300	0		300
F-8485	Triflic monohyd	BLH	PMSF C1 Lithium salt	water	7	92000	276	0		276
F-8463	Recovered C8 - 20% NH3 Salt	DG	C8 Acid	None	17	148000	143	0		143
F-6272	50/50 ET FOSEMA:ODMA Polymer	JPS	POSF	Acetone, xylene	2	13444	98	0		0

191183 lbs/yr of total waste is produced while purforming the re-acidification/phase split steps. Of this 0.1% are FCs with the remaining 99.9% being sulfuric acid and water. 19964 lbs/yr of total waste is produced while draining bottoms from the distillation. Of this 4% are FCs with the remaining 96% being sulfuric acid and filter cell. 147152 lbs/yr of total waste is produced while cleaning. Of this 1.1% are FCs with the remaining 98.9% being sodium hydroxide and water.	o		O	
Clean-up (140,000 lb/yr, 98.6% water, 1.4% FC's)	negligible			
1.Water of reaction, 2, 3 Water/NaCl washes to	riegligible			
remove acids. 36# acrylic acid, 12# H2SO4, 108# NaCl, 4986# water (1823# EtFOSEA)(150# EtFOSEA)	0	10# heptane from heptane strip from batch.	32	Pre-run acetone boil. 2. Heptane strip from batch. 3. Post-run acetone boil. 3,100# - 2000# acetone, 1,050# heptane, 32# EtFOSEA
EIFOSEA)	U	10# neptane nom neptane strip from batch.	32	S2# EIFOSEA
Fractionation (?, <1% FC's, < 10 lb FC's/yr); Cleaning (90946 lb/yr, 99.98% water, 0.02% FC's); Bottoms (31777 lb/yr, 95% water, 5% FC's)	negligible	Charging, Fractionating, Draining	none	
This assumes a 99% yield based on powder weights. This is an assumption based on				
engineering judgement since pcducs does not accurately report the yield do to inacurate heel weights. This does include residual powder left in				
the premix drums. However this neglects any rinse water used to clean the premix drums, pump and hoses. An estimated 7400 lbs (20% solids) total is				
lost per year. Water washes(199,304 lb/yr, 99.7% water, 0.3%				
FC's);Cleaning(1,958,830 lb/yr, 99.97% water, 0.03% FC's)	negligible	Charging, Draining	0	
(664# MeFOSEMA) Flush solids in reactor to sewer with water, 6000# flush water	0	N/A	0	Pre-run and post-run acetone boilouts.
with water, cooo# nosh water	U	IN/A	0	13210 lbs/yr of total waste are produced from distillation
The reactor is almost never cleaned	0		660	bottoms. Of this 5% are FCs and 95% are sulfuric acid with trace amounts of dichromate.
N/A	0	N/A	432	Post run kettle cleaning. 6,000# acetone, 432# MeFOSEMA
39700 lbs/yr of waste are produced while cleaning.				
Of this 1% are FCs and 99% are water and acetic acid.	0		0	
approximately 24500 lbs/yr total waste are produced from cleaning. This assumes that 0.1% of the F-6514 demand is lost while cleaning during the F-6050 step.				
Clean-up (160276 lb/yr, 99.8% water, 0.2% FC's)	negligible			
715 lbs/yr of total waste are produced during disconnecting hoses, flushing lines, and washing totes. Of this 20% are FCs and 80% is water.	0		0	
N/A	0	Solvent strip of FM-3546 raw material. 14# acetone vented	98	10,014 - 7022# acetone, 2800# xylene, 60# Amsco G solvent, 100# filter cake (98# EtFOSEMA polymer)

3	70	138355	1%
15	33	62116	2%
25	87	151710	1%
7	33		
15	32		
15	36		
15	36		
15/25	45/74		

5 5770	000/ A - B - I' B - II (FO 4000)		00.4.11			40000				
F-8772	20% Aq Sodium Salt (FC-1090)	DG	C8 Acid	Acetic Acid	3	18000	36	0		36
			ROH [Cl] with				_			
FM-4200	Carbowx 350 Chlor F/FC760	JPS	SOCI2	Solvent	10	145313	0	0		0
F-4866	Ammonium P-decane (FC-120)	KIH	PDSF	acetone	6	73955	0	0		
			ArylOOH [CI] with							
F-9131	Crude Trimesoyl Trichloride	JPS	SOCI2	Acetone	3	15000	0	0		0
F-8167	TBAPCL/TMS curative	JPS	Aryl Phos. Chl. Salt	Water Flush	69	62600	0	0	0	0
F-8260	Tributylallylphos chloride	JPS	Aryl Phos. Chl. Salt	Dilute acetic acid, acetone, dilute ammonia solution	8	37360	0	0		0
F-9125	HX-868 Aziridine Imidation	JPS	Aryl Aziridine	Acetone, caustic, water flush	30	22800	0	0		0
F-8728	HX-752 AZIR. CUR. FIN. Strip	JPS	Aryl Aziridine	Caustic, acetone	35	22750	0	0		0
F-9126	HX-868 Aziridine Purify	JPS	Aryl Aziridine	Acetone, water flush	30	9600	0	0		0
F-8729	Final HX752 Blend	JPS	Aryl aziridine	acetone	6	22750	0	0		0
F-9124	Distilled TMTC Solution	JPS	Aryl Acid Chloride	Solvent	3	40000	0	0		0
F-7755	Scotchban (FX-840)	НАН	POSF	bulk mixed cleaning solvents	2	10793		0		
F-2196	Crude EPX Catalyst	PJG	PMSF	Acetone	4	5470		0		
F 0075	E0 0-1 6 E0 4 40/4 12		Inerts for spray			000000				
F-8275 F-8166	FC Solvent for FC-143/118 SF-2	DG KIH	drying Inert	none	10	226362 113244		0		
F-8775	PF-5058	KIH	Inert	none	5	103532		0		
F-7524	Heat Trt PTAA LB for FC-40	KIH	Inert	FCHC-123	10	87319		0		
1 702 1		1 (1)	1 11014	1 0110 120		0,010				

		1		7
This is based on an assumption that 1% of the F-				
8772 material (20% solids) could be caught up on				
the vessel walls after draining. The amount of acetic				
acid used for cleaning is based on 08/99 YTD data.				
The amount of water used for cleaning is based on				
6000 lbs used per cleanup. Based on 08/99 YTD				
data a total of 3 cleanups are required to produce				
18000 lbs of F-8772. The total waste produced				
would be approx. 18115 lbs/yr.				
(195,519 inorg salt; 8,583 chlorinated product; no				
FC) (195,519 inorg salt; no FC) Total waste per yr				
529,486 lb. 1615 HCl# from kettle sweetener;				
86,900# off-gas/x's SOCI2 neutralization salts,				20,000# pre-run acetone; 3380# filter cake(2366#
108,620# x's NaOH for neutralization; rest water; No		From vacuum strip of excess SOCI2 reactant. 203#		chlorinated product, 1014# clay); 50,120# solvent flush
FC	700	product chloride; 497# flush hexane; No FC	73,500	(6014# chlorinated product); no FC
(165,248 - 485# HCl, 14,700# NaCl, 26,692#				
Na2SO3, 15,874# NaOH, 4549# DMF, 49# SOCI2,				
260# TMTC product. No FC) (146,088 - 485# HCI,				
14,700# NaCl, 26,692# Na2SO3, 15,874# NaOH,	180 - 122#		18,980 - 6000#	
88,337# water. No FC) Dilute HCI solution for	tolunene, 49#		acetone, 260# TMTC	
reactor sweetener. Neutralize rxn off-gases and	SOCI2, 9# DMF.		product, 4540# DMF,	Pre-series, post-series acetone cleaning. Vacuum solvent
excess thionyl chloride with caustic solution.	No FC	Solvent strip to concentrate and purify the batch.	8180# toluene. No FC	strip to concentrate and purify batch.
(69,310, no FC)(311 lb FX-5166 curative. No FC.)				Lost during blending to exhaust; captured in separator. No
Post-series water flush of ribbon blender	None		35	FC.
(253,088. No FC) (440 pounds excess allyl chloride.				
No FC) Neutralize excess allyl chloride in scrubber		48 lbs allyl chloride vapor lost during vacuum strip. No		48# allyl chloride; 1680# aqueous ammonia; 2275# butyl
with 50 % caustic.	64	FC	36,000	cellosolve; no FC
(5,340 inorg. potassium salts, no FC) (5,340 inorg.	64	FC	36,000	cellosolve; no FC
(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away	64	FC	36,000	cellosolve; no FC
(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water		1.2	36,000	cellosolve; no FC
(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes	64 570 CO2, no FC	FC Gas evolution as reaction product.	None	cellosolve; no FC 6000# weste acetone solvent
(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water		1.2	,	
(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes		Gas evolution as reaction product.	None	
(5,340 inorg. potassium saits, no FC) (5,340 inorg. Pot. Saits, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH,	570 CO2, no FC	Gas evolution as reaction product.	None 14000# acetone,	6000# waste acetone solvent
(5,340 inorg. potassium saits, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC.) Pre-series dilute caustic	570 CO2, no FC	Gas evolution as reaction product.	None 14000# acetone, 73,500# toluene. No	6000# waste acetone solvent Pre-series and post-series acetone boilout. Solvent strip of
(5,340 inorg. potassium saits, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC.) Pre-series dilute caustic	570 CO2, no FC	Gas evolution as reaction product.	None 14000# acetone, 73,500# toluene. No FC	6000# waste acetone solvent Pre-series and post-series acetone boilout. Solvent strip of
(5,340 inorg. potassium saits, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC.) Pre-series dilute caustic	570 CO2, no FC 735# toluene. No FC	Gas evolution as reaction product.	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000#	6000# waste acetone solvent Pre-series and post-series acetone boilout. Solvent strip of
(5,340 inorg. potassium saits, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC.) Pre-series dilute caustic	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene	Gas evolution as reaction product.	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone, 6030#	6000# waste acetone solvent Pre-series and post-series acetone boilout. Solvent strip of
(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC.) Pre-series dilute caustic boilout	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene imine, 60#	Gas evolution as reaction product.	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone. 6030# isopropyl ether, 2520#	6000# waste acetone solvent Pre-series and post-series acetone boilout. Solvent strip of
(5,340 inorg. potassium saits, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC.) Pre-series dilute caustic boilout (6030# isopropyl ether, 2520# toluene, 450#	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene imine, 60# isopropyl ether,	Gas evolution as reaction product.	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone, 6030# isopropyl ether, 2520# toluene, 450#	6000# waste acetone solvent Pre-series and post-series acetone boilout. Solvent strip of organic product phase.
(5,340 inorg. potassium saits, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC.) Pre-series dilute caustic boilout (6030# isopropyl ether, 2520# toluene, 450# butylene imine. No FC) Waste wash water phase	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene imine, 60# isopropyl ether, 24# toluene. No	Gas evolution as reaction product. Assume 1% of solvent stripped from batch is vented.	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone. 6030# isopropyl ether, 2520# toluene, 450# butylene imine. No	6000# waste acetone solvent Pre-series and post-series acetone boilout. Solvent strip of organic product phase. Pre-series and post-series acetone boilout. Solvent strip of
(5,340 inorg. potassium saits, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC.) Pre-series dilute caustic boilout (6030# isopropyl ether, 2520# toluene, 450# butylene imine. No FC) Waste wash water phase	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene imine, 60# isopropyl ether, 24# toluene. No	Gas evolution as reaction product. Assume 1% of solvent stripped from batch is vented.	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone. 6030# isopropyl ether, 2520# toluene, 450# butylene imine. No	Pre-series and post-series acetone boilout. Solvent strip of organic product phase. Pre-series and post-series acetone boilout. Solvent strip of organic product phase. (17,850 - 1050# HX-752 product, 16,800# acetone. No FC) Pre-run and post-run acetone boilouts.
(5,340 inorg. potassium saits, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC,) Pre-series dilute caustic boilout (6030# isopropyl ether, 2520# toluene, 450# butylene imine. No FC) Waste wash water phase separation. Between lot reactor water flush.	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene imine, 60# isopropyl ether, 24# toluene. No FC None	Gas evolution as reaction product. Assume 1% of solvent stripped from batch is vented. Assume 1% of solvent stripped from batch is vented. N/A	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone. 6030# isopropyl ether, 2520# butylene imine. No FC 0	Pre-series and post-series acetone boilout. Solvent strip of organic product phase. Pre-series and post-series acetone boilout. Solvent strip of organic product phase. (17,850 - 1050# HX-752 product, 16,800# acetone. No FC) Pre-run and post-run acetone boilouts. Pre-run and post-run solvent boils yield 39,600# waste
(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC.) Pre-series dilute caustic boilout (6030# isopropyl ether, 2520# toluene, 450# butylene imine. No FC) Waste wash water phase separation. Between lot reactor water flush.	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene imine, 60# isopropyl ether, 24# toluene. No FC	Gas evolution as reaction product. Assume 1% of solvent stripped from batch is vented. Assume 1% of solvent stripped from batch is vented.	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone. 6030# isopropyl ether, 2520# butylene imine. No FC	Pre-series and post-series acetone boilout. Solvent strip of organic product phase. Pre-series and post-series acetone boilout. Solvent strip of organic product phase. (17,850 - 1050# HX-752 product, 16,800# acetone. No FC) Pre-run and post-run acetone boilouts.
(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC,) Pre-series dilute caustic boilout (6030# isopropyl ether, 2520# toluene, 450# butylene imine. No FC) Waste wash water phase separation. Between lot reactor water flush.	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene imine, 60# isopropyl ether, 24# toluene. No FC None	Gas evolution as reaction product. Assume 1% of solvent stripped from batch is vented. Assume 1% of solvent stripped from batch is vented. N/A	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone. 6030# isopropyl ether, 2520# butylene imine. No FC 0	Pre-series and post-series acetone boilout. Solvent strip of organic product phase. Pre-series and post-series acetone boilout. Solvent strip of organic product phase. (17,850 - 1050# HX-752 product, 16,800# acetone. No FC) Pre-run and post-run acetone boilouts. Pre-run and post-run solvent boils yield 39,600# waste
(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC,) Pre-series dilute caustic boilout (6030# isopropyl ether, 2520# toluene, 450# butylene imine. No FC) Waste wash water phase separation. Between lot reactor water flush.	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene imine, 60# isopropyl ether, 24# toluene. No FC None	Gas evolution as reaction product. Assume 1% of solvent stripped from batch is vented. Assume 1% of solvent stripped from batch is vented. N/A	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone. 6030# isopropyl ether, 2520# butylene imine. No FC 0	Pre-series and post-series acetone boilout. Solvent strip of organic product phase. Pre-series and post-series acetone boilout. Solvent strip of organic product phase. (17,850 - 1050# HX-752 product, 16,800# acetone. No FC) Pre-run and post-run acetone boilouts. Pre-run and post-run solvent boils yield 39,600# waste
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(5,340 inorg. potassium salts, no FC) (5,340 inorg. Pot. Salts, no FC) Phase split water phase away from organic product phase, caustic boils, water flushes (110,985 - none is FC) (22,750 - 6125# NaOH, 16,625# water. No FC,) Pre-series dilute caustic boilout (6030# isopropyl ether, 2520# toluene, 450# butylene imine. No FC) Waste wash water phase separation. Between lot reactor water flush.	570 CO2, no FC 735# toluene. No FC 90 - 6# butylene imine, 60# isopropyl ether, 24# toluene. No FC None	Gas evolution as reaction product. Assume 1% of solvent stripped from batch is vented. Assume 1% of solvent stripped from batch is vented. N/A	None 14000# acetone, 73,500# toluene. No FC 18000# - 9000# acetone. 6030# isopropyl ether, 2520# butylene imine. No FC 0	Pre-series and post-series acetone boilout. Solvent strip of organic product phase. Pre-series and post-series acetone boilout. Solvent strip of organic product phase. (17,850 - 1050# HX-752 product, 16,800# acetone. No FC) Pre-run and post-run acetone boilouts. Pre-run and post-run solvent boils yield 39,600# waste
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7	70	42500	25/
25	87	10500	0%
7	70		
6	61		
7	31		
7	41		
7	41		
7	42		
7	33		
7	24		
4	10		
25	87		
15	52		
15	51		
15	27		

F-7126	Heat treated PTAA Inert (FC-5312)	KIH	lun a vel	none	9	37115	0	-	
1			Inert			21625	0	-	
F-8497	frac top PTAA inert (FC-5312)	KIH	Inert	caustic	3				
F-7151	Perm treated PTAA (FC-5312)	KIH	Inert	caustic	3	21361	0		
F-7152	Si-gel Trt PTAA Inert (FC-5312)	KIH	Inert	none	5	20722	0		
FM-3373	Si-gelC8F18/C8F16O	KIH	Inert	none	2	14877	0		
FM-3702	FC-104	KIH	Inert	none		939	0		
F-8217	Fractionation for SF-2	KIH	Inert				0		
F-9117	PF-5056	KIH	Inert	none			0		
FM-3602	FC-75	KIH	Inert	none			0		
F-1256	One Plated Acid for FC-26	DG	C8 Acid	None	3	205	0		0
F-7939	Perfluorosulfonic acid	LMT	C8 Acid	Water Flush		2506	0		
F-9142	Esterification of C8 Acid	LMT	C8 Acid	water Flush/acetone boil		1175	0		
F-9144	C8 Distilled Alcohol	LMT	C8 Acid	water Flush/acetone boil		904	0		
				water flush, caustic boil,					
F-9146	Distilled Polyfoma Monomer	LMT	C8 Acid	acetone boil, water flush			0		
F-9179	Polyfoma in HFE7100 (FC-732)	LMT	C8 Acid	acetone			0		
FM-3405	Gycline Persulfonicacid CPLX	LMT	C8 Acid	water boil			0		
F-8469	Li Trifluo Meth Sulfonimide	BLH				8655	0		
F-9110	Aqueous Lithium FC96	BLH				5850	0		
F-8439	Lithium Bis-Trifluoromethane	BLH				2950	0		
F-8652	N-Butyl FOSEA Monomer;FX-189	BLH				850	0		
F-7843	Li cake recovery	BLH					0		
F-5372	Crude Triflic Acid	BLH					0		
F-7785	FX-9161 Foam Stabilizer	BLH					0		
F-8420	Stabilized C8 Acid in inerts	BLH					0		
F-8421	C8 Acid (>96% C8;0.0-0.5%HB)	BLH					0		
F-8452	Triflic Anhydride	BLH					0		
F-8485	30% Lithium Salt (Aq)	BLH					0		
F-8798	Triflic Acid Monohydrate	BLH					0		
F-9176	Polyfoma in C6 Inerts (FC-722)	BLH					0		
F 7946	FC 226 Polyester Stain Rel	DEH				267448	0		
F-7522	100% Polyester for FC-226	DEH				54600	0		
F-7757	Ground PET for FC-226	DEH				5713	0		
F-7510	PET for FX-226	DEH				5710	0		
F-6952	FC-126 Ammonium Salt Slurry	DG				28463	0		
F-7117	One Plated C8 Acid for FC-126	DG				10468	0		
F-6537	Spray Dried FC-126	DG				9420	0	1	
FM-4074	Camphene Catalyst	EEG					0	1	
F-8777	640MW PECH Mono-0L/Dioxolane	JPS				8245	0	\vdash	
F-9132	Dist Trimesoyl Trichloride	JPS				8090	0	1	
F-9127	HX-868 Final Solvent Strip	JPS				4121	0	†	
F-9128	HX-868 Blend and Package	JPS				3541	0	\vdash	
F-8757	Peo-600 diacetate	JPS				2770	0	\vdash	
F-8228	TEPAN HX879	JPS					0	 	
F-8229	TEPANOL	JPS				+	0	+	
F-8701	4500MW PECH DIOL/TRIOL (RXN)	JPS				+	,	+	
F-8702	4500MW PECH Polyol (Purify)	JPS				+	0	\vdash	
F-8703	4500MW PECH Polyol/Dioxolane	JPS				+	0	+	
F-8761	Triphenyl Sulfonium Chloride	JPS				+	0	-	
F-8776	640MW PECH Mono-0L (Rxn)	JPS					0	-	
1-0770	STORING LEGIT MOHO-OF (LXII)	31 3						<u> </u>	

This material is drained off of the F-7164 run when needed. Any associated wastes have been accounted for in the F-7164 process.		
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15	27	
15	33	
15	33	
15	54	
15	59	
15	59	
	6	
7	42	
7	42	
	42 44	
6	44	
15	4 5	
15	45	
15	70	
7	41	
15	4 5	
4	8	
4	7	
6	17	
4	10	
15	36	
15	32	
15	37	
7	70	
15	33	
7	41	
7	41	
4	10	

F-9100	Triton X100 Chloride	JPS			Г	0	Т	
F-9112	DICB Curative	JPS			† †	0		
F-5522	FC-93	KIH		4959		0	_	
F-2191	perfluoroctanesulfonic acid (FC-93)	KIH		4407		0		
F-8769	Sulfonic Acid in IPE	LKR		36755		0		
F-7584	Purified PFBF for I-1176	LKR				0		
F-7153	Water Soluble Polyester Resi	PJG		2906		0		
F-6567	C8F160/HB (>20% HB) Inert	PJG		1570		0		
F-6566	C8F160/HB (11-20% HB) Inert	PJG				0		
F-8227	FX-9165 Foam Stabilizer	PJG				0		
FM-3131	Inert Main Cut C8F160	PJG				0		
FM 3144	Fractionated C8F160 Inerts	PJG				0		
			·					

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7	42	
25	87	
25	87	
4	10	
15	51	
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	I	

Ranking Strategies.

						Ranking by	FC's per	Lot				
Product	Demand [lots/yr]	Demand [lb/yr]	lots/yr	Total FC Waste [lb FC waste/yr]	Total FC Waste Rank	"P" Process FC's per Lot	"P" Rank	"C" Cleaning FC's per Lot	"C" Rank	"B" Bottoms FC's per Lot	"B" rank	
FM-3256	31	296774	31	49321	1	429	4	0		1221	5	т
F-8400	8	36985	8	34366	2	11		1042	1	3245	1	\vdash
FC-98	7	35000	7	26755	3	3746	1	76		0		\Box
F-8 4 69	6	36000	6	20750	4	0		292	4	3167	2	\Box
F-5372	8	71442	8	12150	5	0		144	7	1375	4	\Box
FM-3141	4	13350	4	9935	6	10		31		2463	3	\vdash
FC-95	4	19200	4	9753	7	2389	2	49		0		\Box
F-6514	106	276000	106	9200	8	0		38		0		
F-5619		27030		6919	9							\Box
F-7535	15	60500	15	6035	10	0		402	3	0		\Box
F-4863	5	50260	5	6030	11	0		206	5	1000	6	П
F-8733	7	72000	7	5488	12	0		96	8	688	7	
FM-3149	7	22935	7	4281	13	599	3	12		0		
F-8439	7	25000	7	3500	14	0		500	2	0		\Box
F-7164	106	317400	106	3356	15	0		0		32		П
F-8450	8	29600	8	2631	16	24		202	6	100	8	
F-7786	5	24000		1920								
F-8443	2	3260		1823								
FM-3173	4	28492		1500								
F-8178	88	740000		1480								П
F-4865	6.5	46800		1073								
F-7160	2	10100		664								
F-8451	17	28600		660								
F-7161	2	7800		432								
F-8462	17	95000		397								
F-6050	106	658619		300								
F-8485	7	92000		276								
F-8463	17	148000		143								
F-6272	2	13444		98								
F-8772	3	18000		36								

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Ranking	by % FC in Wa	aste Stream			
	% FC's in		% FC's in		% FC's in
	Process		Cleaning		Bottoms
	Water	Cleaning	Water	Bottoms Water	Water
Process Water [lb/yr]	Stream	Water [lb/yr]	Stream	[lb/yr]	Stream
0	100	652286	0	184846	17
0	100	6035	5 8	0	100
232950	10	88531	1	0	0
0	0	225511	1	84000	18
0	0	91000	1	201656	5
0	100	20000	1	12000	45
36416	21	106080	0	0	0
0	0	396693	1	0	0
					-
0	0	331965	2	0	0
0	0	183989	1	0	100
0	0	58350	1	78187	6
56370	7	17024	1	0	0
0	0	110750	3	0	0
0	0	0	0	0	100
190992	0	145533	1	0	100

516728	2433747	560689	492
105132	495162	#DIV/0!	100
1	4	#DIV/0!	4

Strategies for FC Waste Reduction

Rank Product Strategy Actions

P1	FC-98	a. Incinerate and or minimize all washes	 Incinerate. Cost would be \$0.70/lb aq waste or \$181,420 per year or \$25,917/lot. Use 2 smaller initial washes?
P2	FC-95	a. Incinerate and or minimize all washes	Complete.
P3	FM-3149	a. Incinerate and or minimize.	1. Incinerate. Cost would be \$0.70/lb aq waste or \$60,566 per year or \$8,652/lot.
P4	FM-3256	a. Continuous fractionation to remove HB's prior to FM-3256 process b. Reduce # H2SO4/#FM-3256	Complete Need longer agitator - Priority!! Process study needed.
		c. Use methanol as bottoms solvent d. Incinerate	Process study needed. Incinerate. Cost would be \$0.70/lb ag waste.

C1	F-8400	a. Minimize water b. Try MeOH c. Incinerate clean-up water d. Incinerate	Incinerate. Cost would be \$0.75/lb aq waste or \$10,777 per year or \$1,347/lot.
C2	F-8439	a. Minimize water b. Incinerate	1. Remove solids prior to wash 2. Try 2 smaller washes 1. Incinerate. Cost would be \$0.20/lb aq waste or \$22,852 per year or \$3,264/lot.
C3	F-7535	a. Minimize water b. Incinerate	Incinerate. Cost would be \$0.20/lb aq waste or \$67,600 per year or \$4,508/lot.
C4	F-8469		1. Complete
C5	F-4863	a. Incinerate	1. Incinerate. Cost would be \$0.20/lb aq waste or \$37,004 per year or \$7,400/lot.
C6	F-8450	a. Incinerate	1. Incinerate. Cost would be \$0.20/lb aq waste or \$29,432 per year or \$3,680/lot.
C7	F-5372	a. Incinerate	Incinerate. Cost would be \$0.20/lb aq waste or \$18,432 per year or \$2,304/lot.
C8	F-8733	a. Incinerate	1. Incinerate. Cost would be \$0.20/lb aq waste or \$11,804 per year or \$1,688/lot.

B1	F-8400	a. Incinerate/minimize bottoms	1. Complete
B2	F-8469	a. Incinerate/minimize bottoms	1. Complete
B3	FM-3141	a. Incinerate/minimize bottoms	1. Incinerate. Cost would be \$0.70/lb aq waste or \$10,124 per year or \$2,531/lot.
		b. Try MeOH as solvent vs H2O	
B4	F-5372	a. Incinerate/minimize bottoms	1. Review w/ "C1 6 Sigma Team"
			2. Incinerate. Cost would be \$0.35/lb aq waste or
			\$74,430/yr or \$9,304/lot.
B5	FM-3256	b. Incinerate/minimize bottoms	1. Incinerate. Cost would be \$0.70/lb aq waste or
			\$155,894/yr or \$5,029/lot.
B6	F-4863		Incinerate. Cost would be about \$8,560/lot.
B7	F-8733	a. Incinerate	1. Incinerate. Cost would be \$0.35/lb aq waste or
			\$29,050/yr or \$4,150/lot.
B8	F-8450	a. Incinerate	

FC Waste Team

Mike Rappel Lynn Running George Bentz

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PHASE I COST ESTIMATE

				Cost to			
		Lbs. of Waste (FC and	Cost to Incinerate	Incinerate per	Total Cost For	Total Cost per	Lots per
Product	Waste Type	Water) per Year	per lb. of Waste	Year	Barrels per Year	Year	Year
FC-98	Process	259171	0.36	93301	12959	106260	7
FC-95	Process	45974	0.4	18390	2299	20688	4
F-5372	Bottoms	15714	0.75	11786	786	12571	8
FM-3256	Bottoms	37860	0.75	28395	4102	32497	31
F-8733	Bottoms	6876	0.75	5157	344	5501	7
F-8450	Bottoms	799	0.75	599	87	686	8
F-4863	Bottoms	5000	0.75	3750	250	4000	5
F-8400	Bottoms	25959	0.75	19469	1298	20767	8
Total		397353		180847	22123	202970	

Note

- 1. F-5372 and F-8733 are predicted as using 30% water to help drain fron reactor.
 2. FM-3256, F-8450, F-4863, and F-8400 are predicted to be able to drain straight bottoms.
- 3. FC-98 and FC-95 are predicted to use the same amount of water as last year.
- 4. Drum cost is based on \$65 drums for F-8450 and F-3256 along with \$30 drums for other wastes.
- 5. Drums are assumed to hold 600 lbs of waste.

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Cost per	Product Demand per	Lbs. Product Produced per	Increase in Cost
Lot	Year	Lot	per lb of Product
15180	35000	5000	3.04
5172	19200	4800	1.08
1571	71442	8930	0.18
1048	296774	9573	0.11
786	72000	10286	0.08
86	29600	3700	0.02
800	50260	10052	0.08
2596	36985	4623	0.56

Plan Forward

<u>Phase I</u>

<u>Product</u>	Chemical Name	Waste Type	Lbs. FC Waste	<u>Method</u>	Engineer on Project	Estimated Date of Completion
FM-3256	C8 Acid	Bottoms	37860	b. Incinerate/minimize bottoms	Dean Graham	Complete
FC-98	PECHSF	Process	26221	a. Incinerate/minimize all washes.	Lynn Running	Complete
F-8400	PECHSF	Bottoms	25959	a. Incinerate	Lynn Running	Complete
F-5372	C1, PMSF Acid	Bottoms	11000	a. Incinerate/minimize bottoms	Lynn Running	09/15/00
FC-95	POSF	Process	9558	a. Incinerate/minimize all washes.	Lynn Running	Complete
F-4863	PDSF	Bottoms	5000	a. Incinerate	Lynn Running	Complete
F-8733	PMSF	Bottoms	4813	a. Incinerate	Briana Hagen	09/01/00
F-8450	C8 Acid	Bottoms	799	a. Incinerate	Dean Graham	10/01/00
Total			121210			

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Phase II

<u>Product</u>	Chemical Name	Waste Type	Lbs. FC Waste	<u>Method</u>	Engineer on Project	Estimated Date of Completion
FM-3256	C8 Acid	Process	13312	a. Use vacum pump instead of jets.	Dean Graham	To be determined.
FM-3141	EBSF	Boltoms	9853	a. Incinerate/minimize bottoms b. Try MeOH as solvent vs H2O	Lynn Running	To be determined.
F-8400	PECHSF	Cleaning	8335	Minimize water Try MeOH Incinerate clean-up water Incinerate	Lynn Running	To be determined.
F-7535	PMSF Lithium salt	Cleaning	6035	a. Minimize water b. Incinerate	Lynn Running	To be determined.
F-8439	PMSF Lithium salt	Cleaning	3500	a. Minimize water b. Incinerate	Briana Hagen	To be determined.
FM-3149	EBSF	Process	4196	a. Incinerate and or minimize.	Lynn Running	To be determined.
F-8450	C8 Acid	Cleaning	1619	a. Incinerate	Dean Graham	To be determined.
F-5372	C1, PMSF Acid	Cleaning	1150	a. Incinerate	Lynn Running	To be determined.
F-4863	PDSF	Cleaning	1031	a. Incinerate	Lynn Running	To be determined.
F-8733	PMSF	Cleaning	675	a. Incinerate	Briana Hagen	To be determined.

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