

US EPA ARCHIVE DOCUMENT

	B	C
1	Source Description	
2		
3	Phase I ID No.	3007
4	EPA ID No.	WVD004341491
5	Facility Name	Cytec Industries, Inc.
6	Facility Location	
7	City	Willow Island
8	State	WV
9	Unit ID Name/No.	Fluidized bed incinerator
10	Other Sister Facilities	
11	Number of Sister Facilities	0
12	Combustor Class	Onsite incinerator
13	Combustor Type	Fluidized bed
14	Combustor Characteristics	Fluidized bed incinerator
15		
16	Capacity (MMBtu/hr)	
17	Soot Blowing	
18	APCS Detailed Acronym	WS
19	APCS General Class	LEWS
20	APCS Characteristics	Wet scrubber
21	Hazardous Wastes	Liq, sludge
22	Haz Waste Description	Wastewater treatment sludge, organic liquid solvents
23	Supplemental Fuel	Natural gas
24		
25	Stack Characteristics	
26	Diameter (ft)	
27	Height (ft)	
28	Gas Velocity (ft/sec)	
29	Gas Temperature (°F)	
30		
31	Permitting Status	
32	HWC Burn Status (Date if Terminated)	

	B	C
1	Condition Description	
2		
3	3007C1	
4		
5	Report Name/Date	Cytec Industries, Willow Island, West Virginia, Preliminary Compliance Determination for the Fluidized Bed Incinerator Pursuant to HWC MACT Regulations, ENSR, February 29, 2000, Project No. 0270-047-400
6	Report Prepare	ENSR Corporation
7	Testing Firm	ENSR Corporation
8	Testing Dates	December 15, 1999
9	Cond Dates	Dec-99
10	Condition Descr	Normal wastes, APCD operation, low comb temp
11	Content	PM, HCl/Cl ₂ , CO, metals, D/F
12		
13	3007C2	
14		
15	Report Name/Date	Cytec Industries, Willow Island, West Virginia, Preliminary Compliance Determination for the Fluidized Bed Incinerator Pursuant to HWC MACT Regulations, ENSR, February 29, 2000, Project No. 0270-047-400
16	Report Prepare	ENSR Corporation
17	Testing Firm	ENSR Corporation
18	Testing Dates	December 16, 1999
19	Cond Dates	Dec-99
20	Condition Descr	Normal wastes, APCD operation, high comb temp
21	Content	PM, HCl/Cl ₂ , CO, metals, D/F
22		
23	3007C3	
24		
25	Report Name/Date	Cytec Industries, Willow Island, West Virginia, Phase II, Preliminary Compliance Determination for the Fluidized Bed Incinerator Pursuant to HWC MACT Regulations, ENSR, September 7, 2000, Project No. 0270-047-900
26	Report Prepare	ENSR Corporation
27	Testing Firm	ENSR Corporation
28	Testing Dates	June 19, 2000
29	Cond Dates	Jun-00
30	Condition Descr	Normal wastes, APCD operation, low comb temp
31	Content	PM, Hg speciation, metals, CO

	B	C	D	E	F	G	H	I	J	K	L	M
1	Stack Gas Emissions 1											
2												
3		Com Units		7% O2								
4												
5	3007C1					R1		R2		R3		Cond Avg
6												
7	CO (RA)		ppmv	n		19.1		20.2				
8	CO (RA)	E1	ppmv	y		31.5		36.0				33.7
9												
10	PM	E1	gr/dscf	y		0.0621		0.056				0.0591
11												
12	HCl	E1	ppmv	y		1.99		1.23				1.6
13	Cl2	E1	ppmv	y	nd	0.069	nd	0.064		100		0.1
14	Total Chlorine	E1	ppmv	y		2.128		1.358				1.7
15												
16	Arsenic	E2	ug/dscm	y		1.98		1.95				2.0
17	Beryllium	E2	ug/dscm	y		0.21		0.14				0.2
18	Chromium	E2	ug/dscm	y		33.3		22.9				28.1
19	Cadmium	E2	ug/dscm	y		16		9.24				12.6
20	Lead	E2	ug/dscm	y		88.9		83.7				86.3
21	Mercury	E2	ug/dscm	y		255.1		158.8				207.0
22	Antimony	E2	ug/dscm	y		14.3		6.13				10.2
23	Barium	E2	ug/dscm	y		51.1		32.2				41.7
24	Silver	E2	ug/dscm	y		2.85		0.51				1.7
25	Thallium	E2	ug/dscm	y		8.65		6.97				7.8
26	Nickel	E2	ug/dscm	y		57.1		46.2				51.7
27	Selenium	E2	ug/dscm	y		1.6		2.27				1.9
28												
29	SVM	E2	ug/dscm	y		104.9		92.94				98.9
30	LVM	E2	ug/dscm	y		35.49		24.99				30.2
31												
32	Sampling Train	PM, E1										
33	Stack Gas Flowrate		dscfm			2755		3223				2989.0
34	O2		%			15		15				15.0
35	Moisture		%			15.5		14.7				15.1
36	Temperature		°F			131		129				130.0
37												
38	Sampling Train	Metz E2										
39	Stack Gas Flowrate		dscfm			3278		3831				3554.5
40	O2		%			15		15				15.0
41	Moisture		%			17.2		15.5				16.4
42	Temperature		°F			136		131				133.5
43												
44												
45	3007C2					R1		R2		R3		Cond Avg
46												
47	CO (RA)		ppmv	n		20.4		22.6				
48	CO (RA)	E1	ppmv	y		32.0		36.0				34.0
49												
50	PM	E1	gr/dscf	y		0.0729		0.0383				0.0556
51												
52	HCl	E1	ppmv	y		3.476		3.045				3.3
53	Cl2	E1	ppmv	y		0.081	nd	0.052				0.1
54	Total Chlorine	E1	ppmv	y		3.638		3.149				3.4
55												
56	Arsenic	E2	ug/dscm	y		2.56		2.88				2.7
57	Beryllium	E2	ug/dscm	y		0.09		0.08				0.1
58	Chromium	E2	ug/dscm	y		18		18.08				18.0
59	Cadmium	E2	ug/dscm	y		6.6		5.23				5.9
60	Lead	E2	ug/dscm	y		70.8		38.5				54.7
61	Mercury	E2	ug/dscm	y		272.2		229.1				250.7
62	Antimony	E2	ug/dscm	y		6.1		6.32				6.2
63	Barium	E2	ug/dscm	y		30.7		40.7				35.7
64	Silver	E2	ug/dscm	y	nd	0.93	nd	1.52		100		1.2
65	Thallium	E2	ug/dscm	y		9.3		6.66				8.0
66	Nickel	E2	ug/dscm	y		33		35.4				34.2
67	Selenium	E2	ug/dscm	y	nd	0.85		1.01		46		0.9
68												
69	SVM	E2	ug/dscm	y		77.4		43.73				60.6
70	LVM	E2	ug/dscm	y		20.65		21.04				20.8
71												

	B	C	D	E	F	G	H	I	J	K	L	M
72	Sampling Train	PM, E1										
73	Stack Gas Flowrate	dscfm				3365		3341				3353.0
74	O2	%				14.5		14				14.3
75	Moisture	%				15.5		15.5				15.5
76	Temperature	°F				131		131				131.0
77												
78	Sampling Train	Metz E2										
79	Stack Gas Flowrate	dscfm				3257		3174				3215.5
80	O2	%				14.5		14				14.3
81	Moisture	%				20.1		21.2				20.7
82	Temperature	°F				142		144				143.0
83												
84												
85	3007C3					R1		R2		R3		Cond Avg
86												
87	CO (RA)	ppmv	n			8.6		3.7		3.9		
88	CO (RA)	E1 ppmv	y			14.3		5.8		6.1		8.7
89												
90	PM	E1 gr/dscf	y			0.0097		0.0195		0.0121		0.0138
91												
92	Arsenic	E2 ug/dscm	y			1.06		1.95		0.38		1.1
93	Beryllium	E2 ug/dscm	y			0.08		0.07		0.08		0.1
94	Chromium	E2 ug/dscm	y			8.66		13.03		3.51		8.4
95	Cadmium	E2 ug/dscm	y			4.86		5.02		4.96		4.9
96	Lead	E2 ug/dscm	y			24.7		38.5		33.2		32.1
97	Mercury	E2 ug/dscm	y			72.8		89		95		85.6
98	Antimony	E2 ug/dscm	y			8.35		5.99		1.53		5.3
99	Barium	E2 ug/dscm	y			13.5		25.3		9		15.9
100	Silver	E2 ug/dscm	y			0.08 nd		2.85 nd		1.68	98	1.5
101	Thallium	E2 ug/dscm	y			7.14		10.5		7.64		8.4
102	Nickel	E2 ug/dscm	y			7.13		18.3		225		83.5
103	Selenium	E2 ug/dscm	y			1.59		3.15		1.91		2.2
104												
105	SVM	E2 ug/dscm	y			29.56		43.52		38.16		37.1
106	LVM	E2 ug/dscm	y			9.8		15.05		3.97		9.6
107												
108	Sampling Train	PM, E1										
109	Stack Gas Flowrate	dscfm				3749		3781		3614		3714.7
110	O2	%				14.17		14		13.83		14.0
111	Moisture	%				14.7		17.7		16.8		16.4
112	Temperature	°F				129		135		134		132.7
113												
114	Sampling Train	Metz E2										
115	Stack Gas Flowrate	dscfm				3875		3748		4151		3924.7
116	O2	%				14.17		14		13.83		14.0
117	Moisture	%				15.5		17.7		17.2		16.8
118	Temperature	°F				130		136		135		133.7

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	Feedstream 1																							
2																								
3	3007C1	Trial burn			R1	R2	F1	F2	Cond Avg	R1	F2	Sludge HW	R2	F2	Sludge HW	HW	R1	HW	R2	HW	Cond Avg			
4					F1	F1	Liq HW	Sludge HW																
5	Feedstream Number				Solvent	Solvent	Solvent	WWT Sludge		WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge								
6	Feed Class				Liq HW	Liq HW	Liq HW	Sludge HW		Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW								
7	Feed Class 2				Liq HW	Liq HW	Liq HW	Sludge HW		Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW								
8	Feedstream Description				Solvent	Solvent	Solvent	WWT Sludge		WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge								
9	Feed Rate	lb/hr			189.3	183.6	186.45	2553		2711	2632.00	2632.00	2711	2632.00	2632.00									
10	Heating Value	Btu/lb			15990	15800	15895.00	1410		1690	1550.00	1550.00	1690	1550.00	1550.00									
11	Chlorine	lb/hr			1.193	1.175	1.18	2.8		4.9	3.84	3.84	4.9	3.84	3.84									
12	Ash	lb/hr			0.019	0.018	0.02	2132		2318	2224.83	2224.83	2318	2224.83	2224.83									
13	Mercury	ppmw			0.04	0.04	0.04	0.41		0.25	0.33	0.33	0.25	0.33	0.33									
14	Silver	ppmw			0.5	0.5	0.50	5		5	5.00	5.00	5	5.00	5.00									
15	Arsenic	ppmw			5	5	5.00	5		5	5.00	5.00	5	5.00	5.00									
16	Barium	ppmw			0.2	0.1	0.15	270		260	265.00	265.00	260	265.00	265.00									
17	Beryllium	ppmw			0.1	0.1	0.10	1		1	1.00	1.00	1	1.00	1.00									
18	Cadmium	ppmw			0.2	0.2	0.20	4.6		4.3	4.45	4.45	4.3	4.45	4.45									
19	Chromium	ppmw			2.3	2.7	2.50	100		91	95.50	95.50	100	95.50	95.50									
20	Nickel	ppmw			1	2	1.50	210		200	205.00	205.00	200	205.00	205.00									
21	Lead	ppmw			10	10	10.00	15		11	13.00	13.00	11	13.00	13.00									
22	Antimony	ppmw			3	3	3.00	3		3	3.00	3.00	3	3.00	3.00									
23	Selenium	ppmw			10	10	10.00	10		10	10.00	10.00	10	10.00	10.00									
24	Thallium	ppmw			20	20	20.00	24		20	22.00	22.00	20	22.00	22.00									
25																								
26	Stack Gas Flowrate	dscfm			2755.0	3223	2989.00	2755		3223	2989.00	2989.00	3223	2989.00	2989.00									
27	Oxygen	%			15.0	15	15	15		15	15	15	15	15	15									
28																								
29	Thermal Feedrate	MMBtu/hr			3.0	2.90088	3.0	3.59973		4.58159	4.1	4.1	4.58159	4.1	4.1									
30	Estimated Firing Rate	MMBtu/hr																						
31																								
32	Feedrate MTEC Calculations																							
33	Chlorine	ug/dscm			270062.6	227450.7	247088.7	635941.0		944575.5	802339.3	802339.3	944575.5	802339.3	802339.3									
34	Ash	mg/dscm			4.3	3.6	3.9	482737.1		448673.4	464375.7	464375.7	448673.4	464375.7	464375.7									
35	Mercury	ug/dscm			1.7	1.4	1.6	237.0		231.2	181.3	181.3	231.2	181.3	181.3									
36	Silver	ug/dscm			21.4	17.8	19.5	289.1		262.4	274.7	274.7	262.4	274.7	274.7									
37	Arsenic	ug/dscm			214.3	177.7	194.6	2890.6		2623.8	2746.8	2746.8	2623.8	2746.8	2746.8									
38	Barium	ug/dscm			8.6	3.6	5.8	156094.6		136438.7	145579.7	145579.7	136438.7	145579.7	145579.7									
39	Beryllium	ug/dscm			4.3	3.6	3.9	578.1		524.8	549.4	549.4	524.8	549.4	549.4									
40	Cadmium	ug/dscm			8.6	7.1	7.8	2659.4		2566.5	2444.6	2444.6	2566.5	2444.6	2444.6									
41	Chromium	ug/dscm			98.6	96.0	97.3	57812.8		47753.5	52463.6	52463.6	47753.5	52463.6	52463.6									
42	Nickel	ug/dscm			42.9	71.1	58.4	121406.9		104952.8	112618.3	112618.3	104952.8	112618.3	112618.3									
43	Lead	ug/dscm			428.7	355.4	389.2	8671.9		5772.4	7141.6	7141.6	5772.4	7141.6	7141.6									
44	Antimony	ug/dscm			128.6	106.6	116.7	1734.4		1574.3	1648.1	1648.1	1574.3	1648.1	1648.1									
45	Selenium	ug/dscm			428.7	355.4	389.2	5781.3		5247.6	5493.6	5493.6	5247.6	5493.6	5493.6									
46	Thallium	ug/dscm			857.3	710.8	778.3	13875.1		10495.3	12085.9	12085.9	10495.3	12085.9	12085.9									
47																								
48	SVM	ug/dscm			137.2	113.7	124.5	4393.8		3830.8	4092.7	4092.7	3830.8	4092.7	4092.7									
49	LVM	ug/dscm			317.2	277.2	295.8	61281.6		50902.1	55759.8	55759.8	50902.1	55759.8	55759.8									
50																								
51																								
52																								
53																								
54	3007C2	Trial burn			R1	R2	Cond Avg	R1	Cond Avg	R2	Cond Avg	Cond Avg	R1	Cond Avg	R2	Cond Avg	R1	Cond Avg	R2	Cond Avg	Cond Avg			
55					F1	F1	Liq HW	Sludge HW		F2	Sludge HW	F2	Sludge HW	F2	Sludge HW									
56	Feedstream Number				Solvent	Solvent	Solvent	WWT Sludge		WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge									
57	Feed Class				Liq HW	Liq HW	Liq HW	Sludge HW		Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW									
58	Feed Class 2				Liq HW	Liq HW	Liq HW	Sludge HW		Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW	Sludge HW									
59	Feedstream Description				Solvent	Solvent	Solvent	WWT Sludge		WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge	WWT Sludge									
60	Feed Rate	lb/hr			113.9	130.5	122.20	2857		2834	2845.50	2845.50	2857	2845.50	2845.50									

	B	Z	AA	AB	AD	AF	AH	AI	AJ
1	Feedstream 1								
2									
3	3007C1	R2		Cond Avg					
4									
5	Feedstream Number	F3							
6	Feed Class	Total		F3					
7	Feed Class 2	Total		Total					
8	Feedstream Description	Total		Total					
9	Feed Rate								
10	Heating Value								
11	Chlorine								
12	Ash								
13	Mercury								
14	Silver								
15	Arsenic								
16	Barium								
17	Beryllium								
18	Cadmium								
19	Chromium								
20	Nickel								
21	Lead								
22	Antimony								
23	Selenium								
24	Thallium								
25									
26	Stack Gas Flowrate			2989					
27	Oxygen			15					
28									
29	Thermal Feedrate								
30	Estimated Firing Rate								
31									
32	Feedrate MTEC Calculation								
33	Chlorine	1172026.2		1049428.0					
34	Ash	448676.9		464375.7					
35	Mercury	132.6		182.8					
36	Silver	280.2		294.1					
37	Arsenic	2801.5		2941.4					
38	Barium	136442.2		145585.5					
39	Beryllium	528.3		553.2					
40	Cadmium	2263.6		2452.4					
41	Chromium	47849.5		52560.9					
42	Nickel	105023.9		112676.6					
43	Lead	6127.8		7530.8					
44	Antimony	1680.9		1764.8					
45	Selenium	5603.0		5882.7					
46	Thallium	11206.1		12864.2					
47									
48	SVM	8391.4		9983.2					
49	LVM	51179.3		56055.5					
50									
51									
52									
53									
54	3007C2	R2		Cond Avg					
55									
56	Feedstream Number	F3							
57	Feed Class	Total		F3					
58	Feed Class 2	Total		Total					
59	Feedstream Description	Total		Total					
60	Feed Rate								

B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
61	Heating Value	Btu/lb		15900		15840		15870.00		1640		510		1075.00									
62	Chlorine	lb/hr		0.695		0.887		0.79		2.9		3.1		2.9									
63	Ash	lb/hr		0.023		0.013		0.02		2431		2432		2431.44									
64	Mercury	ppmw		0.04		0.04		0.04		0.43		0.4		0.42									
65	Silver	ppmw		0.5		0.5		0.50		0.5		0.5		0.50									
66	Arsenic	ppmw		5		5		5.00		5		5		5.00									
67	Barium	ppmw		0.1		0.1		0.10		250		270		260.00									
68	Beryllium	ppmw		0.1		0.1		0.10		0.9		1		0.95									
69	Cadmium	ppmw		0.2		0.2		0.20		4.1		4.5		4.30									
70	Chromium	ppmw		1.9		1.4		1.65		84		89		86.50									
71	Nickel	ppmw		2		1		1.50		200		210		205.00									
72	Lead	ppmw		10		10		10.00		12		13		12.50									
73	Antimony	ppmw		3		3		3.00		3		3		3.00									
74	Selenium	ppmw		10		10		10.00		10		10		10.00									
75	Thallium	ppmw		20		20		20.00		21		30		25.50									
76	Stack Gas Flowrate	dscfm		3365.0		3341		3353.00		3365		3341		3353.00									3353.00
78	Oxygen	%		14.5		14		14.25		14.5		14		14.25									14.25
79																							
80	Thermal Feedrate	MMBtu/hr																					
81	Estimated Firing Rate	MMBtu/hr																					
82																							
83	Feedrate MTEC Calculations																						
84	Chlorine	ug/dscm	y	118905.3		142033.6		130839.1		488942.8		498958.3		494052.6		607848.1		640991.9		624891.7			607848.1
85	Ash	mg/dscm	y	5.2		2.5		3.7		550570.8		470675.7		507495.9		550575.9		470678.2		507499.6			550575.9
86	Mercury	ug/dscm	y	0.8		0.8		0.8		210.2		181.4		195.3		211.0		182.3		196.1			211.0
87	Silver	ug/dscm	y	9.7		10.4		10.1		244.5		226.8		235.3		254.2		237.2		245.4			254.2
88	Arsenic	ug/dscm	y	97.5		104.4		101.1		2444.7		2268.0		2353.1		2542.2		2372.4		2454.1			2542.2
89	Barium	ug/dscm	y	1.9		2.1		2.0		122235.7		122471.6		122360.4		122237.6		122473.7		122362.4			122237.6
90	Beryllium	ug/dscm	y	1.9		2.1		2.0		440.0		453.6		447.1		442.0		455.7		449.1			442.0
91	Cadmium	ug/dscm	y	3.9		4.2		4.0		2004.7		2041.2		2023.7		2008.6		2045.4		2027.7			2008.6
92	Chromium	ug/dscm	y	37.0		29.2		33.3		41071.2		40370.3		40708.4		41108.2		40399.5		40741.7			41108.2
93	Nickel	ug/dscm	y	39.0		20.9		30.3		97788.6		95255.7		96476.5		97827.5		95276.6		96506.8			97827.5
94	Lead	ug/dscm	y	194.9		208.9		202.1		5867.3		5896.8		5882.2		6062.2		6105.7		6084.8			6062.2
95	Antimony	ug/dscm	y	58.5		62.7		60.6		1466.8		1360.8		1411.9		1525.3		1423.5		1472.5			1525.3
96	Selenium	ug/dscm	y	194.9		208.9		202.1		4889.4		4536.0		4706.2		5084.4		4744.9		4908.3			5084.4
97	Thallium	ug/dscm	y	389.9		417.7		404.2		10267.8		13608.0		12000.7		10657.7		14025.7		12404.9			10657.7
98																							0.0
99	SVM	ug/dscm	y	198.8		213.1		206.1		7872.0		7938.0		7906.4		8070.8		8151.0		8112.5			8070.8
100	LVM	ug/dscm	y	136.4		135.8		136.4		43956.0		43091.8		43508.5		44092.4		43227.6		43644.9			44092.4
101																							
102																							
103																							
104	3007C3	Trial burn																					
105																							
106	Feedstream Number																						
107	Feed Class																						
108	Feed Class 2																						
109	Feedstream Description																						
110	Feed Rate	lb/hr		306.1		337.6		304.3		316.00		2801		2678		2595		2691.33		2691.33			Total
111	Heating Value	Btu/lb		14000		14000		14000		14000.00		1250		1250		1250		1250.00		1250.00			Total
112	Chlorine	lb/hr		0.122		0.101		0.091		0.11		1.96		2.41		2.08		2.15		2.15			Total
113	Ash	lb/hr		0.306		0.338		0.304		0.32		2380.85		2249.52		2179.8		2270.06		2270.06			Total
114	Mercury	ppmw		0.04		0.04		0.04		0.04		0.12		0.1		0.14		0.12		0.12			Total
115	Silver	ppmw		0.5		0.5		0.5		0.50		0.5		0.5		0.5		0.50		0.50			Total
116	Arsenic	ppmw		7.2		7.27		7.8		7.27		5		5		5		5.00		5.00			Total
117	Barium	ppmw		0.1		0.1		0.1		0.10		230		210		230		223.33		223.33			Total
118	Beryllium	ppmw		0.1		0.1		0.1		0.10		0.8		0.7		0.7		0.73		0.73			Total
119	Cadmium	ppmw		0.2		0.2		0.2		0.20		3.4		3		3.4		3.27		3.27			Total
120	Chromium	ppmw		0.4		0.4		0.4		0.40		59		55		66		60.00		60.00			Total

	B	Z	AA	AB	AD	AF	AH	AI	AJ
61	Heating Value								
62	Chlorine								
63	Ash								
64	Mercury								
65	Silver								
66	Arsenic								
67	Barium								
68	Beryllium								
69	Cadmium								
70	Chromium								
71	Nickel								
72	Lead								
73	Antimony								
74	Selenium								
75	Thallium								
76									
77	Stack Gas Flowrate	3353							3353
78	Oxygen	14.25							14.25
79									
80	Thermal Feedrate								
81	Estimated Firing Rate								
82									
83	Feedrate MTEC Calculation								
84	Chlorine	640991.9							624891.7
85	Ash	470678.2							507499.6
86	Mercury	182.3							196.1
87	Silver	237.2							245.4
88	Arsenic	2372.4							2454.1
89	Barium	122473.7							122362.4
90	Beryllium	455.7							449.1
91	Cadmium	2045.4							2027.7
92	Chromium	40399.5							40741.7
93	Nickel	95276.6							96506.8
94	Lead	6105.7							6084.8
95	Antimony	1423.5							1472.5
96	Selenium	4744.9							4908.3
97	Thallium	14025.7							12404.9
98		0.0							0.0
99	SVM	8151.0							8112.5
100	LVM	43227.6							43644.9
101									
102									
103									
104	3007C3	R3		Cond Avg	R1	R2	R3		Cond Avg
105									
106	Feedstream Number								
107	Feed Class	Total	F3	Total					
108	Feed Class 2	Total		Total	HW	HW	HW		HW
109	Feedstream Description	Total		Total					
110	Feed Rate								
111	Heating Value								
112	Chlorine								
113	Ash								
114	Mercury								
115	Silver								
116	Arsenic								
117	Barium								
118	Beryllium								
119	Cadmium								
120	Chromium								

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	
121	Nickel					1		1		1	1.00		150		140		150		146.67						
122	Lead		ppmw			10		10		10	10.00		10		10		10		10.00						
123	Antimony		ppmw			3		3		3	3.00		10		11		9		10.00						
124	Selenium		ppmw			10		10		10	10.00		10		10		10		10.00						
125	Thallium		ppmw			20		20		20	20.00		20		20		20		20.00						
126																									
127	Stack Gas Flowrate		dscfm		3749.0		3781		3614		3714.67		3749		3781		3614		3714.67		3749.0			3781	
128	Oxygen		%		14.2		14		13.83		14		14.17		14		13.83		14		14.17			14	
129																									
130	Thermal Feedrate		MMBtu/hr		4.3		4.7264		4.2602		4.42		3.50125		3.3475		3.24375		3.36						
131	Estimated Firing Rate		MMBtu/hr																						
132																									
133	<i>Feedrate MTEC Calculations</i>																								
134	Chlorine		ug/dscm	y	17899.2		14324.0		13187.5		15115.8		286629.7		340874.5		299892.9		309355.6		304528.9				355198.6
135	Ash		mg/dscm	y	44.7		47.7		44.0		45.5		348050.4		318149.6		314887.6		326787.2		348095.1				318197.3
136	Mercury		ug/dscm	y	1.8		1.9		1.8		1.8		49.1		37.9		52.5		46.5		50.9				39.8
137	Silver		ug/dscm	y	22.4		23.9		22.0		22.7		204.7		189.4		187.4		193.7		227.1				213.2
138	Arsenic		ug/dscm	y	322.2		324.7		342.9		330.6		2047.4		1893.7		1874.3		1937.2		2369.5				2218.4
139	Barium		ug/dscm	y	4.5		4.8		4.4		4.5		94178.3		79537.4		86219.2		86526.5		94182.8				79542.2
140	Beryllium		ug/dscm	y	4.5		4.8		4.4		4.5		327.6		265.1		262.4		284.1		332.1				269.9
141	Cadmium		ug/dscm	y	8.9		9.5		8.8		9.1		1392.2		1136.2		1274.5		1265.6		1401.2				1145.8
142	Chromium		ug/dscm	y	17.9		19.1		17.6		18.2		24158.8		20831.2		24741.2		23245.9		24176.7				20850.3
143	Nickel		ug/dscm	y	44.747975		47.7		44.0		45.5		61420.7		53024.9		56229.9		56823.4		61465.4				53072.7
144	Lead		ug/dscm	y	447.47975		477.5		439.6		454.9		4094.7		3787.5		3748.7		3874.3		4542.2				4265.0
145	Antimony		ug/dscm	y	134.24393		143.2		131.9		136.5		4094.7		4166.2		3373.8		3874.3		4229.0				4309.5
146	Selenium		ug/dscm	y	447.47975		477.5		439.6		454.9		4094.7		3787.5		3748.7		3874.3		4542.2				4265.0
147	Thallium		ug/dscm	y	894.9595		954.9		879.2		909.8		8189.4		7575.0		7497.3		7748.6		9084.4				8529.9
148																									
149	SVM		ug/dscm	y	456.4		487.0		448.4		464.0		5486.9		4923.7		5023.2		5139.934937		5943.3				5410.8
150	LVM		ug/dscm	y	344.6		348.6		364.9		353.3		26533.7		22990.1		26877.9		25467.21532		26878.3				23338.6

	B	Z	AA	AB	A	AD	AF	AH	AI	AJ
121	Nickel									
122	Lead									
123	Antimony									
124	Selenium									
125	Thallium									
126										
127	Stack Gas Flowrate	3614		3714.666667						
128	Oxygen	13.83		14						
129										
130	Thermal Feedrate									
131	Estimated Firing Rate									
132										
133	<i>Feedrate MTEC Calculation</i>									
134	Chlorine	313080.4		324471.4		304528.9	355198.6	313080.4		324471.4
135	Ash	314931.5		326832.7		348095.1	318197.3	314931.5		326832.7
136	Mercury	54.2		48.3		50.9	39.8	54.2		48.3
137	Silver	209.4		216.5		227.1	213.2	209.4		216.5
138	Arsenic	2217.2		2267.7		2369.5	2218.4	2217.2		2267.7
139	Barium	86223.6		86531.1		94182.8	79542.2	86223.6		86531.1
140	Beryllium	266.8		288.7		332.1	269.9	266.8		288.7
141	Cadmium	1283.3		1274.7		1401.2	1145.8	1283.3		1274.7
142	Chromium	24758.8		23264.1		24176.7	20850.3	24758.8		23264.1
143	Nickel	56273.9		56868.9		61465.4	53072.7	56273.9		56868.9
144	Lead	4188.2		4329.2		4542.2	4265.0	4188.2		4329.2
145	Antimony	3505.7		4010.8		4229.0	4309.5	3505.7		4010.8
146	Selenium	4188.2		4329.2		4542.2	4265.0	4188.2		4329.2
147	Thallium	8376.5		8658.4		9084.4	8529.9	8376.5		8658.4
148										
149	SVM	5471.6		5603.9		5943.3	5410.8	5471.6		5603.9
150	LVM	27242.8		25820.5		26878.3	23338.6	27242.8		25820.5

	B	C	D	E	F	G
1	Process Information					
2				R1	R2	R3
3	3007C1					
4						
5	Freeboard Temperature	F		1591	1593	
6	Scrubber Water Flowrate	gpm		122.4	126.4	
7	Scrubber Pressure	in H2O		15.1	15.4	
8						
9	3007C2					
10						
11	Freeboard Temperature	F		1631	1581	
12	Scrubber Water Flowrate	gpm		127.8	121.8	
13	Scrubber Pressure	in H2O		19.8	18.7	
14						
15	3007C3					
16						
17	Freeboard Temperature	F		1606	1655	1662
18	Scrubber Water Flowrate	gpm		120.5	115	118.8
19	Scrubber Pressure	in H2O		14	13.9	14

A	B	C	D	E	F	G	H
1	PCDD/PCDF						
2	N						
3	Facility Name and ID:	Cytec, Willow Island, WV					
4	Condition ID:	3007C1					
5	Condition/Test Date:	Normal operations, low temp, Dec 15, 1999					
6							
7		I-TEF					
8		Wght Fact					
9				Total	TEQ	Total	TEQ
10				Full ND	Full ND	1/2 ND	1/2 ND
11	Detected in sample volume (pg)						
12	2,3,7,8-TCDD	1		8.9	8.90	8.90	8.90
13	Total TCDD	0		120	0	120	0
14	1,2,3,7,8-PCDD	0.5		13	6.50	13.00	6.50
15	Total PCDD	0		120	0	120	0
16	1,2,3,4,7,8-HxCDD	0.1	nd	6.3	0.63	3.15	0.32
17	1,2,3,6,7,8-HxCDD	0.1	nd	5.6	0.56	2.80	0.28
18	1,2,3,7,8,9-HxCDD	0.1	nd	5.2	0.52	2.60	0.26
19	Total HxCDD	0		78	0	78	0
20	1,2,3,4,6,7,8-HpCDD	0.01		34	0.34	34.00	0.34
21	Total HpCDD	0		65	0	65	0
22	OCDD	0.001		71	0.07	71.00	0.07
23	2,3,7,8-TCDF	0.1		30	3.00	30.00	3.00
24	Total TCDF	0		920	0	920	0
25	1,2,3,7,8-PCDF	0.05		38	2	38	2
26	2,3,4,7,8-PCDF	0.5		61	31	61	31
27	Total PCDF	0		650	0	650	0
28	1,2,3,4,7,8-HxCDF	0.1		56	6	56	6
29	1,2,3,6,7,8-HxCDF	0.1		40	4	40	4
30	2,3,4,6,7,8-HxCDF	0.1		35	4	35	4
31	1,2,3,7,8,9-HxCDF	0.1	nd	11	1	6	1
32	Total HxCDF	0		350	0	350	0
33	1,2,3,4,6,7,8-HpCDF	0.01		130	1	130	1
34	1,2,3,4,7,8,9-HpCDF	0.01		21	0	21	0
35	Total HpCDF	0		210	0	210	0
36	OCDF	0.001		50	0	50	0
37	Gas sample volume (dscf)				131.623	131.623	131.623
38	O2 (%)				15	15	15
39							
40	PCDD/PCDF (ng in sample)				0.069	2.6	0.067
41	PCDD/PCDF (ng/dscm @ 7% O2)	4.1			0.043	1.650	0.042
42							
43	TEQ Cond Avg	0.0421					
44	Total Cond Avg	1.6500					
45							
46	data not available for run 2 due to analytical error processing sample train components						

A	B	C	D	E	F	G	H	I	J	K	L	M
1	PCDD/PCDF											
2	N											
3	Facility Name and ID:	Cytex, Willow Island, WV										
4	Condition ID:	3007C2										
5	Condition/Test Date:	Normal operations, high temp, Dec 16, 1999										
6												
7		I-TEF										
8		Wght Fact										
9			Total	TEQ	Total	TEQ	Total	TEQ	Total	TEQ	Total	TEQ
			Full ND	Full ND	1/2 ND	1/2 ND	1/2 ND	Full ND	Full ND	Full ND	1/2 ND	1/2 ND
10	Detected in sample volume (pg)											
11	2,3,7,8-TCDD	1	6.4	6.40	3.20	3.20	nd	3.20	nd	7.2	3.60	3.60
12	Total TCDD	0	32	0	32	0	0	13	0.00	13	0.00	0.00
13	1,2,3,7,8-PCDD	0.5	8.30	4.15	8.30	4.15	nd	6.3	3.15	3.15	1.58	1.58
14	Total PCDD	0	87	0	87	0	0	7.7	0.00	8	0.00	0.00
15	1,2,3,4,7,8-HxCDD	0.1	9.8	0.98	4.90	0.49	nd	3.7	0.37	1.85	0.19	0.19
16	1,2,3,6,7,8-HxCDD	0.1	8.6	0.86	4.30	0.43	nd	4.4	0.44	2.20	0.22	0.22
17	1,2,3,7,8,9-HxCDD	0.1	8.1	0.81	4.05	0.41	nd	3.3	0.33	1.65	0.17	0.17
18	Total HxCDD	0	69	0	69	0	0	24	0.00	24	0.00	0.00
19	1,2,3,4,6,7,8-HpCDD	0.01	30	0.30	30.00	0.30	0	11	0.11	11.00	0.11	0.11
20	Total HpCDD	0	56	0	56	0	0	22	0.00	22	0.00	0.00
21	OCDD	0.001	68	0.07	68.00	0.07	0	29	0.03	29	0.03	0.03
22	2,3,7,8-TCDF	0.1	22	2.20	22.00	2.20	0	14	1.40	14	1.40	1.40
23	Total TCDF	0	550	0	550	0	0	330	0.00	330	0.00	0.00
24	1,2,3,7,8-PCDF	0.05	31	2	31	2	2	18	0.90	18	0.90	0.90
25	2,3,4,7,8-PCDF	0.5	43	22	43	22	0	24	12.00	24	12.00	12.00
26	Total PCDF	0	460	0	460	0	0	230	0.00	230	0.00	0.00
27	1,2,3,4,7,8-HxCDF	0.1	44	4	44	4	4	25	2.50	25	2.50	2.50
28	1,2,3,6,7,8-HxCDF	0.1	29	3	29	3	3	15	1.50	15	1.50	1.50
29	2,3,4,6,7,8-HxCDF	0.1	31	3	31	3	3	12	1.20	12	1.20	1.20
30	1,2,3,7,8,9-HxCDF	0.1	17	2	17	2	nd	9.4	0.94	5	0.47	0.47
31	Total HxCDF	0	270	0	270	0	0	120	0.00	120	0.00	0.00
32	1,2,3,4,6,7,8-HpCDF	0.01	93	1	93	1	1	42	0.42	42	0.42	0.42
33	1,2,3,4,7,8,9-HpCDF	0.01	16	0	16	0	0	7.9	0.08	8	0.08	0.08
34	Total HpCDF	0	150	0	150	0	0	63	0.00	63	0.00	0.00
35	OCDF	0.001	37	0	37	0	0	15	0.02	15	0.02	0.02
36												
37	Gas sample volume (dscf)		129.561	129.561	129.561	129.561		130.158	130.158	130.158	130.158	130.158
38	O2 (%)		14.5	14.5	14.5	14.5		14	14	14	14	14
39												
40	PCDD/PCDF (ng in sample)		0.052	0.052	1.8	0.048		0.033	0.033	0.9	0.026	0.026
41	PCDD/PCDF (ng/dscm @ 7% O2, 17.4		0.031	0.031	1.045	0.028	38.1	0.018	0.018	0.464	0.014	0.014
42												
43	TEQ Cond Avg		0.0211									
44	Total Cond Avg		0.7543									