

US EPA ARCHIVE DOCUMENT

	A	B
1	Source Description	
2		
3	Phase II ID No.	856
4	EPA ID No.	IND001859032
5	Facility Name	Rhodia Inc.
6	Facility Location	
7	City	Hammond
8	State	IN
9	Unit ID Name/No.	Sulfuric Acid Recovery Unit No. 4
10	Other Sister Facilities	None
11	Combustor	Sulfuric Acid Recovery Furnace
12	Combustor Characteristics	
13	Capacity (MMBtu/hr)	250
14	Soot Blowing	Yes (cond 1, run 2)
15	APCS	WHB/QT/GC/WESP/SO3CON/WS-WS
16	APCS Characteristics	Waste heat boiler, quench tower, gas cooler, wet ESPs, SO2-SO3 converter, Oleum tower, 2 stage absorber scrubbers
17	Hazardous Wastes	Liq
18	Haz Waste Description	Liquid organic and aqueous haz wastes
19	Supplemental Fuel	Natural gas
20		
21	Stack Characteristics	
22	Diameter (ft)	6
23	Height (ft)	275
24	Gas Velocity (ft/sec)	36.0
25	Gas Temperature (°F)	133.9
26		
27	Permitting Status	Tier I metals (Sb, Pb, Hg, Ba, Ag, Tl, Ni, Se); Tier III metals (As, Be, Cd, Cr+6)
28	HWC Burn Status (Date if Terminated)	

	A	B
1	Cond Description	
2		
3	856C1	
4		
5	Report Name/Date	Biennial RCRA Trial Burn and BIF Certification of Compliance Test Report Regeneration Unit Number 4, January 1997
6	Report Prepare	Roy F. Weston, Inc.
7	Testing Firm	Roy F. Weston, Inc.
8	Testing Dates	October 8-10, 1996
9	Condition Descr	Trial burn/CoC; max haz waste feed rate, Cl, metal, max comb temp
10	Content	PM, CO, HCl/Cl ₂ , Tier III metals, PCDD/F, DRE for POHC (CCl ₄)
11		
12	856C2	
13		
14	Report Name/Date	Biennial RCRA Trial Burn and BIF Certification of Compliance Test Report Regeneration Unit Number 4, January 1997
15	Report Prepare	Roy F. Weston, Inc.
16	Testing Firm	Roy F. Weston, Inc.
17	Testing Dates	October 10-11, 1996
18	Condition Descr	Trial burn/CoC; max POHC spiking, min comb temp and O ₂
19	Content	PM, CO, HCl/Cl ₂ , PCDD/F, DRE for POHCs (MCB, CCl ₄ , TCB)

	B	C	D	E	F	G	H	I	J	K	L	M
1	Stack Gas Emissions											
2												
3		Comments	Units	7% O2								
4												
5	856C1	Trial Burn				R1		R2		R3		Cond Avg
6												
7	PM		gr/dscf	y		0.0004		0.0002		0.0002		0.0003
8	CO (MHRA)		ppmv	y		10		15		15		13.3
9	HCl		g/s			0.53		0.18		0.42		0.3767
10	Cl2		g/s			0.01		0.02		0.01		0.0133
11	Chromium (+6)		g/s		nd	1.80E-06	nd	2.00E-06	nd	1.90E-06		
12	Arsenic		g/s			2.00E-04		1.00E-05		7.70E-05		
13	Beryllium		g/s		nd	1.60E-06	nd	1.70E-06	nd	1.60E-06		
14	Cadmium		g/s		nd	1.60E-06	nd	1.70E-06	nd	1.60E-06		
15	Barium		g/s			3.50E-05		6.42E-05		5.61E-05		
16	Chromium		g/s			6.60E-05		1.25E-04		1.36E-04		
17	Nickel		g/s			3.51E-05		8.92E-05		1.13E-04		
18	Lead		g/s			7.36E-05		6.41E-05		2.86E-05		
19	Antimony		g/s			2.00E-05		4.40E-05		4.56E-05		
20	Selenium		g/s			1.64E-04		5.90E-05		9.08E-05		
21	Thallium		g/s		nd	3.13E-06	nd	3.39E-06	nd	3.15E-06		
22	Mercury		g/s			4.31E-05		1.36E-05		2.11E-05		
23	Silver		g/s			2.48E-06		2.15E-06		2.12E-06		
24												
25	POHC DRE	Carbon Tetrachloride										
26	Feedrate											
27	Emission Rate		lb/hr			1.29E-05	nd	1.00E-05	nd	1.00E-05	nd	1.1E-05
28	DRE		%			99.999995	>	99.999998	>	99.999998	>	99.999997
29												
30	Sampling Train	PM, HCl/Cl2										
31	Stack Gas Flowrate		dscfm			51790		51850		51070		51570
32	O2		%			6.4		5.8		5		5.7
33	Moisture		%			0.5		0.7		0.7		0.63
34	Temperature		°F			129		132		132		131
35												
36	Sampling Train	Cr+6										
37	Stack Gas Flowrate		dscfm			52490		48660		51050		50733.3
38	O2		%			6.4		5.8		5		5.7
39	Moisture		%			0.3		0.9		1.7		1.0
40	Temperature		°F			128		131		132		130.3
41												
42	Sampling Train	Metals										
43	Stack Gas Flowrate		dscfm			56830		52920		57700		55816.7
44	O2		%			6.4		5.8		5		5.7
45	Moisture		%			0.3		0.5		0.3		0.4
46	Temperature		°F			139		136		138		137.7
47												
48	Sampling Train	PCDD/PCDF										
49	Stack Gas Flowrate		dscfm			54400		55590		56140		55376.7
50	O2		%			6.4		5.8		5		5.7
51	Moisture		%			0.5		0.3		0.2		0.3
52	Temperature		°F			134		136		138		136
53												
54	Sampling Train	DRE										
55	Stack Gas Flowrate		dscfm			54138		52330		53990		53486
56												
57	HCl		ppmv	y		13.9		4.5		10.2		9.5
58	Cl2		ppmv	y		0.1		0.25866		0.1		0.2
59	Total Chlorine		ppmv	y		14.2		5.0		10.4		9.8
60	Chromium (+6)		µg/dscm	y	100	0.1	100	0.1	100	0.1	100	0.1
61	Arsenic		µg/dscm	y		7.2		0.4		2.5		3.3
62	Beryllium		µg/dscm	y	100	0.1	100	0.1	100	0.1	100	0.1
63	Cadmium		µg/dscm	y	100	0.1	100	0.1	100	0.1	100	0.1
64	Barium		µg/dscm	y		1.3		2.4		1.8		1.8
65	Chromium		µg/dscm	y		2.4		4.6		4.4		3.8
66	Nickel		µg/dscm	y		1.3		3.3		3.6		2.7
67	Lead		µg/dscm	y		2.6		2.4		0.9		2.0
68	Antimony		µg/dscm	y		0.7		1.6		1.5		1.3
69	Selenium		µg/dscm	y		5.9		2.2		2.9		3.7
70	Thallium		µg/dscm	y	100	0.1	100	0.1	100	0.1	100	0.1

	B	C	D	E	F	G	H	I	J	K	L	M
71	Mercury		µg/dscm	y		1.5		0.5		0.7		0.9
72	Silver		µg/dscm	y		0.1		0.1		0.1		0.1
73												
74	SVM		µg/dscm	y	2	2.7	3	2.4	5	1.0	3	2.0
75	LVM		µg/dscm	y	1	9.6	1	5.0	1	6.9	1	7.2
76												
77												
78												
79	856C2	Trial Burn				R1		R2		R3		Cond Avg
80												
81	PM		gr/dscf	y		0.0002		0.0006		0.0003		0.0004
82	CO (MHRA)		ppmv	y		90		95		90		91.7
83	HCl		g/s			0.21		0.17		0.25		0.21
84	Cl2		g/s			0.01		0.01		0.01		0.01
85												
86												
87												
88	POHC DRE	CCl4										
89	Feedrate											
90	Emission Rate		lb/hr		nd	9.88E-06	nd	9.95E-06	nd	1.02E-05		
91	DRE		%		>	99.999997	>	99.999997	>	99.999997		
92	POHC DRE	MCB										
93	Feedrate											
94	Emission Rate		lb/hr		nd	3.21E-05	nd	3.07E-05	nd	3.07E-05		
95	DRE		%		>	99.9998	>	99.9998	>	99.9998		
96	POHC DRE	TCB										
97	Feedrate											
98	Emission Rate		lb/hr		nd	4.60E-05	nd	5.36E-05	nd	4.47E-05		
99	DRE		%		>	99.9998	>	99.9998	>	99.9999		
100												
101	Sampling Train	PM, HCl/Cl2										
102	Stack Gas Flowrate		dscfm			52690		53990		53580		53420
103	O2		%			7		6.8		6.4		6.73
104	Moisture		%			0.8		0.6		0.4		0.6000
105	Temperature		°F			130		131		132		131
106												
107	Sampling Train	PCDD/PCDF										
108	Stack Gas Flowrate		dscfm			55600		51950		55020		54190
109	O2		%			7		6.8		6.4		6.7
110	Moisture		%			0.2		0.5		0.4		0.37
111	Temperature		°F			137		136		139		137.3
112												
113	Sampling Train	DRE										
114	Stack Gas Flowrate		dscfm			53965		54101		53396		53821
115												
116	HCl		ppmv	y		5.6		4.4		6.3		5.5
117	Cl2		ppmv	y		0.1		0.1		0.1		0.1
118	Total Chlorine		ppmv	y		5.9		4.7		6.6		5.7

	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Feedstreams												
2													
3													
4	856C1	Trial burn											
5	Feed Class 2												
6	Feedstream Description												
7	Feed Rate												
8	Thermal Feedrate		g/hr										
9	(Heating Value)		MMBtu/hr										
10	Ash		Btu/lb										
11	Chlorine		g/hr										
12	Antimony		g/hr										
13	Arsenic		g/hr										
14	Barium		g/hr										
15	Beryllium		g/hr										
16	Cadmium		g/hr										
17	Chromium		g/hr										
18	Lead		g/hr										
19	Mercury		g/hr										
20	Silver		g/hr										
21	Thallium		g/hr										
22													
23		CCl4 not considered as spike for chlorine											
24													
25	Gas Flowrate		dscfm										
26	Oxygen		%										
27													
28	Thermal Feedrate		MMBtu/hr										
29	Estimated Firing Rate		MMBtu/hr										
30													
31	Feedrate MTEC Calculations												
32	Ash		mg/dscm										
33	Chlorine		ug/dscm										
34	Antimony		ug/dscm										
35	Arsenic		ug/dscm										
36	Barium		ug/dscm										
37	Beryllium		ug/dscm										
38	Cadmium		ug/dscm										
39	Chromium		ug/dscm										
40	Lead		ug/dscm										
41	Mercury		ug/dscm										
42	Silver		ug/dscm										
43	Thallium		ug/dscm										
44													
45	SVM		ug/dscm										
46	LVM		ug/dscm										
47													
48													
49	856C2	Trial burn											
50	Feed Class 2												
51	Feedstream Description												
52	Feed Rate		g/hr										
53	Thermal Feedrate		MMBtu/hr										

	B	C	D	E	F	G	H	I	J	K	L	M	N
54	(Heating Value)		Btu/lb		1728				4939				
55	Ash		g/hr		16519				408895				
56	Chlorine		g/hr		288459				183738		10850		
57	MCB		lb/hr								20		
58	CCl4		lb/hr								306.5		
59	TCB		lb/hr								30.0		
60													
61	CCl4 not considered as spike												
62													
63	Gas Flowrate		dscfm		53420.0				53420.0		53420.0		53420.0
64	Oxygen		%		6.7				6.7		6.7		6.7
65													
66	Thermal Feedrate		MMBtu/hr		105.2		14.0		98.2				217.4
67	Estimated Firing Rate		MMBtu/hr										241.9
68													
69	Feedrate MTEC Calculations												
70	Ash		mg/dscm		179				4424				4602
71	Chlorine		ug/dscm		3120675				1987758		117380		5225812

	A	B	C
1	Process Information		
2			Cond Avg
3	856C1	Trial burn	
4			
5	Comb. Temp	°F	2239.06
6	Combustion Chamber Pressure	H ₂ O	-1.89
7	ESP Power	kVA	10.05
8			
9	856C2	Trial burn	
10			
11	Comb. Temp	°F	1826.6
12	Combustion Chamber Pressure	H ₂ O	-1.3
13	ESP Power	kVA	11.0

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	PCDD/PCDF																
2	Facility Name and ID:	Rhodia Inc.															
3	Condition ID:	856C1															
4	Condition/Test Date:	Max haz waste feed rate, max comb temp, October 8-10, 1996															
5																	
6																	
7																	
8																	
9																	
10																	
11	Detected in sample volume (ng)																
12	2,3,7,8-TCDD	1			0.080	0.08	0.08	nd	0.03	0.030	0.015	0.015	nd	0.03	0.030	0.02	0.015
13	Total TCDD	0			0.000	1.80	0	0	0.15	0.000	0.15	0	0	0.14	0.000	0.00	0
14	1,2,3,7,8-PCDD	0.5			0.135	0.27	0.135	0	0.03	0.015	0.03	0.015	0	0.04	0.020	0.04	0.020
15	Total PCDD	0			0.000	2.70	0	0.09	0.03	0.000	0.09	0	0	0.28	0.000	0.00	0
16	1,2,3,4,7,8-HxCDD	0.1			0.014	0.14	0.0	nd	0.03	0.003	0.02	0.00	nd	0.02	0.003	0.02	0.002
17	1,2,3,6,7,8-HxCDD	0.1			0.013	0.13	0.013	nd	0.03	0.003	0.02	0	0	0.02	0.002	0.02	0.002
18	1,2,3,7,8,9-HxCDD	0.1			0.027	0.27	0.027	nd	0.03	0.003	0.015	0.0015	0	0.04	0.004	0.04	0.004
19	Total HxCDD	0			0.000	2.40	0	0.22	0.05	0.000	0.22	0	0.33	0.000	0.33	0.33	0
20	1,2,3,4,6,7,8-HpCDD	0.01			0.004	0.44	0.004	0	0.05	0.001	0.05	0.001	0	0.10	0.001	0.10	0.001
21	Total HpCDD	0.001			0.000	1.20	0	0.05	0.05	0.000	0.05	0	0.24	0.000	0.24	0.24	0
22	2,3,7,8-TCDF	0.1			0.001	0.01	0.001	0	0.18	0.018	0.18	0.018	nd	0.02	0.002	0.01	0.001
23	Total TCDF	0			0.000	0.28	0.0	4.9	0.09	0.000	4.90	0	0	0.02	0.000	0.01	0
24	1,2,3,7,8-PCDF	0.05		nd	0.001	0.01	0.001	0	0.09	0.005	0.09	0.005	nd	0.03	0.002	0.02	0.001
25	2,3,4,7,8-PCDF	0.5		nd	0.010	0.01	0.0	0	0.13	0.065	0.13	0.1	nd	0.03	0.015	0.02	0.01
26	Total PCDF	0			0.000	0.15	0	1.9	0.09	0.000	1.90	0	0	0.03	0.000	0.03	0
27	1,2,3,4,7,8-HxCDF	0.1			0.003	0.03	0.003	0	0.11	0.011	0.11	0.01	0	0.02	0.002	0.02	0.002
28	1,2,3,6,7,8-HxCDF	0.1			0.001	0.01	0.001	0	0.03	0.003	0.03	0.00	nd	0.02	0.002	0.01	0.001
29	2,3,4,6,7,8-HxCDF	0.1			0.002	0.02	0.002	0	0.05	0.005	0.05	0.01	0	0.02	0.002	0.02	0.002
30	1,2,3,7,8,9-HxCDF	0.1		nd	0.002	0.01	0.001	nd	0.02	0.002	0.01	0.00	nd	0.02	0.002	0.01	0.001
31	Total HxCDF	0			0.000	0.14	0	0.45	0.045	0.000	0.45	0	0.06	0.000	0.06	0.06	0
32	1,2,3,4,6,7,8-HpCDF	0.01			0.000	0.03	0.0003	0	0.03	0.000	0.04	0.0004	0	0.01	0.000	0.01	0.0001
33	1,2,3,4,7,8,9-HpCDF	0.01			0.000	0.02	0.0002	nd	0.04	0.000	0.02	0.0002	nd	0.02	0.000	0.01	0.0001
34	Total HCDF	0			0.000	0.1	0	0.04	0.04	0.000	0.0	0	0	0.01	0.000	0.01	0
35	OCDF	0.001		nd	0.000	0.04	0.00002	nd	0.05	0.000	0.0	0	0	0.04	0.000	0.02	0
36																	
37	Gas sample volume (dscl)				117.00	117.00	117.00		117.00	117.00	123.89	123.89		117.00	117.00	121.52	121.52
38	O2 (%)				6.40	6.40	6.40		6.40	6.40	5.8	5.8		6.40	6.40	5.00	5.00
39																	
40	PCDD/PCDF (ng in sample)				0.29	9.6	0.29		0.16	0.16	8.0	0.143		0.09	0.09	0.9	0.06
41	PCDD/PCDF (ng/dscm @ 7% O2	4.4			0.0854	2.7860	0.0835	4.1	0.0475	0.0475	2.092	0.038	8.1	0.0252	0.0252	0.239	0.015
42																	
43	TEQ Cond Avg	0.053															
44	Total Cond Avg	1.7															

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	PCDD/PCDF																
2	Facility Name and ID:	Rhodia Inc.															
3	Condition ID:	856C2															
4	Condition/Test Date:	Max haz waste, POHC spiking, min comb temp, October 10-11, 1996															
5																	
6																	
7																	
8																	
9																	
10																	
11	Detected in sample volume (ng)																
12	2,3,7,8-TCDD	1	nd	0.03	0.030	0.02	0.02	nd	0.05	0.050	0.025	0.025	nd	0.03	0.030	0.02	0.015
13	Total TCDD	0	nd	0.12	0.000	0.12	0.12	0	0.05	0.000	0.03	0.03	nd	0.03	0.000	0.00	0
14	1,2,3,7,8-PCDD	0.5	nd	0.05	0.025	0.03	0.03	0.013	0.07	0.035	0.04	0.04	nd	0.04	0.020	0.02	0.010
15	Total PCDD	0	nd	0.09	0.000	0.09	0.09	0	0.08	0.000	0.08	0.08	nd	0.04	0.000	0.00	0
16	1,2,3,4,7,8-HxCDD	0.1	nd	0.06	0.006	0.03	0.03	0.0	0.08	0.008	0.04	0.04	nd	0.05	0.005	0.00	0.003
17	1,2,3,6,7,8-HxCDD	0.1	nd	0.05	0.005	0.03	0.03	0.003	0.06	0.006	0.03	0.03	nd	0.04	0.004	0.02	0.002
18	1,2,3,7,8,9-HxCDD	0.1	nd	0.05	0.005	0.03	0.03	0.003	0.07	0.007	0.035	0.035	nd	0.04	0.004	0.02	0.002
19	Total HxCDD	0	nd	0.18	0.000	0.18	0.18	0	0.17	0.000	0.17	0.17	nd	0.04	0.000	0.02	0
20	1,2,3,4,6,7,8-HpCDD	0.01		0.06	0.001	0.06	0.06	0.001	0.05	0.001	0.05	0.05	nd	0.05	0.001	0.03	0.000
21	Total HpCDD	0		0.08	0.000	0.08	0.08	0	0.08	0.000	0.08	0.08	nd	0.05	0.000	0.03	0
22	OCDD	0.001		0.15	0.000	0.15	0.15	0.000	0.16	0.000	0.16	0.16	nd	0.08	0.000	0.04	0
23	2,3,7,8-TCDF	0.1		0.07	0.007	0.07	0.07	0.007	0.04	0.004	0.04	0.04	nd	0.04	0.004	0.04	0.004
24	Total TCDF	0		2.00	0.000	2.00	2.00	0.0	0.04	0.000	0.04	0.04	nd	0.94	0.000	0.94	0
25	1,2,3,7,8-PCDF	0.05		0.03	0.002	0.03	0.03	0.002	0.05	0.003	0.03	0.03	nd	0.03	0.002	0.02	0.001
26	Total PCDF	0.5		0.06	0.030	0.06	0.06	0.03	0.05	0.025	0.03	0.03	nd	0.12	0.015	0.02	0.01
27	1,2,3,4,7,8-HxCDF	0.1		0.05	0.005	0.05	0.05	0.005	0.05	0.005	0.03	0.03	nd	0.03	0.003	0.02	0.002
28	1,2,3,6,7,8-HxCDF	0.1	nd	0.03	0.003	0.02	0.02	0.002	0.04	0.004	0.02	0.02	nd	0.02	0.002	0.01	0.001
29	2,3,4,6,7,8-HxCDF	0.1	nd	0.02	0.002	0.02	0.02	0.002	0.05	0.005	0.03	0.03	nd	0.03	0.003	0.02	0.002
30	1,2,3,7,8,9-HxCDF	0.1	nd	0.04	0.004	0.02	0.02	0.002	0.05	0.005	0.03	0.03	nd	0.03	0.003	0.02	0.002
31	Total HxCDF	0		0.04	0.000	0.04	0.04	0	0.05	0.000	0.03	0.03	nd	0.02	0.000	0.01	0.0001
32	1,2,3,4,6,7,8-HpCDF	0.01		0.02	0.000	0.02	0.02	0.0002	0.04	0.000	0.02	0.02	nd	0.02	0.000	0.01	0.0002
33	1,2,3,4,7,8,9-HpCDF	0.01	nd	0.05	0.001	0.03	0.03	0.0003	0.06	0.001	0.03	0.03	nd	0.04	0.000	0.02	0.0002
34	Total HCDF	0		0.02	0.000	0.02	0.02	0	0.05	0.000	0.03	0.03	nd	0.03	0.000	0.02	0
35	OCDF	0.001	nd	0.08	0.000	0.0	0.0	0.00004	0.09	0.000	0.05	0.05	nd	0.06	0.000	0.03	0
36																	
37	Gas sample volume (dscf)				123.49	123.49	123.49	123.49		123.49	116.81	116.81			123.49	121.38	121.38
38	O2 (%)				7.00	7.00	7.00	7.00		7.00	6.8	6.8			7.00	6.40	6.40
39																	
40	PCDD/PCDF (ng in sample)				0.13	3.2	0.09			0.16	0.7	0.081			0.10	1.2	0.05
41	PCDD/PCDF (ng/dscm @ 7% O2)		63		0.0358	0.9214	0.0245	93		0.0453	0.201	0.024	98		0.0274	0.338	0.014
42																	
43	TEQ Cond Avg				0.021												
44	Total Cond Avg				0.5												