

US EPA ARCHIVE DOCUMENT

	B	C
1	<b>Source Description</b>	
2		
3	Phase II ID No.	2003
4	EPA ID No.	LAD008187080
5	Facility Name	Dow Chemical Co.
6	Facility Location	
7	City	Plaquemine
8	State	LA
9	Unit ID Name/No.	R-750
10	Other Sister Facilities	None
11	Number of Sister Facilities	0
12	Combustor Class	Liquid-fired boiler
13	Combustor Type	Liquid-fired
14	Combustor Characteristics	Multipass firetube
15	Capacity (MMBtu/hr)	15
16	Soot Blowing	
17	APCS Detailed Acronym	Q/HCIABS/CWS
18	APCS General Class	WQ, LEWS
19	APCS Characteristics	Quench, HCl absorber, Cl2 wet scrubber .Water in HCl absorber, caustic sodium hydroxide in Cl2 scrubber
20	Hazardous Wastes	Liq
21	Haz Waste Description	Chlorinated methanes plant liquid wastes
22	Supplemental Fuel	Natural gas
23		
24	Stack Characteristics	
25	Diameter (ft)	2.92
26	Height (ft)	80
27	Gas Velocity (ft/sec)	7
28	Gas Temperature (°F)	100
29		
30	Permitting Status	Tier I for all metals expect Cr+6
	HWC Burn Status (Date if	
31	Terminated)	

	B	C
1	<b>Cond Description</b>	
2		
3	<b>2003C1</b>	
4		
5	Report Name/Date	Trial Burn Report, Chlorinated Methanes, Industrial Boiler R-750, Dow Chem., Louisiana Operations, Volume 1: Report, December 22, 1997
6	Report Prepar	Radian International
7	Testing Firm	Radian International
8	Testing Dates	September 22, 1997
9	Cond Dates	Sep-97
10	Cond Description	Trial burn; max waste feedrates (Cr, ash spiking), steam prod rate, min L/G
11	Content	PM, HCl/Cl <sub>2</sub> , DRE, CO, Cr+6
12		
13	<b>2003C2</b>	
14		
15	Report Name/Date	Trial Burn Report, Chlorinated Methanes, Industrial Boiler R-750, Dow Chem., Louisiana Operations, Volume 1: Report, December 22, 1997
16	Report Prepar	Radian International
17	Testing Firm	Radian International
18	Testing Dates	September 25, 1997
19	Cond Dates	Sep-97
20	Cond Description	Trial burn; min combustion chamber temperature
21	Content	PM, HCl/Cl <sub>2</sub> , DRE, CO
22		
23	<b>2003C3</b>	
24		
25	Report Name/Date	Trial Burn Report, Chlorinated Methanes, Industrial Boiler R-750, Dow Chem., Louisiana Operations, Volume 1: Report, December 22, 1997
26	Report Prepar	Radian International
27	Testing Firm	Radian International
28	Testing Dates	August 18-19, 1997
29	Cond Dates	Aug-97
30	Cond Description	Risk burn; normal op conditions
31	Content	Organics, PCDD/PCDF

	B	C	D	E	F	G	H	I	J	K	L	M
1	<b>Stack Gas Emissions</b>											
2												
3		Comments	Units	7% O2								
4												
5												
6	<b>2003C1</b>	<b>(min comb temp)</b>				R1	R2	R3	Cond Avg			
7												
8	PM	E1	gr/dscf	y		0.028	0.019	0.013	0.0200			
9	CO (MHRA)	E1	ppmv	y		10.8	9.5	9.7	10.0			
10	CO (RA)	E1	ppmv	y		10.2	9.2	9.5	9.6			
11	HCl		µg/dscm	n		2.44	3.32	4.76				
12	Cl2		µg/dscm	n		397	582	552				
13	Chromium (Hex)		µg/dscm	n		9.9	13.5	8.14				
14												
15	POHC DRE	Carbon tetrachloride										
16	POHC Feedrate		lb/hr			2176	2219	2341				
17	Emissions Rate											
18	DRE	E1	%		>	99.99997	>	99.99996	>	99.99996		
19												
20	POHC DRE	Chlorobenzene										
21	POHC Feedrate		lb/hr			199.98	199.96	176.59				
22	Emissions Rate											
23	DRE	E1	%		>	99.9996	>	99.9996	>	99.9996		
24												
25	Sampling Train	PM, HCl/Cl2	E1									
26	Stack Gas Flowrate		dscfm			3318	3992	3820	3710.0			
27	O2		%			5.3	5.2	5.2	5.2			
28	Moisture		%			9.4	8.7	8.7	8.9			
29	Temperature		°F			113	110	110	111.0			
30												
31	HCl	E1	ppmv	y		0.001	0.002	0.003	0.002			
32	Cl2	E1	ppmv	y		0.12	0.18	0.17	0.16			
33	Total Chlorine	E1	ppmv	y		0.24	0.36	0.34	0.31			
34	Chromium (Hex)	E1	µg/dscm	y		8.8	12.0	7.2	9.3			
35												
36	<b>2003C2</b>	<b>(max feed, prod. rates)</b>				R1	R2	R3	Cond Avg			
37												
38	PM	E1	gr/dscf	y		0.0092	0.0053	0.0048	0.0064			
39	CO (MHRA)	E1	ppmv	y		12.5	12.6	12.6	12.6			
40	CO (RA)	E1	ppmv	y		12.2	12.5	12.2	12.3			
41	HCl		µg/dscm	n		9	7.03	9.73				
42	Cl2		µg/dscm	n		718	769	826				
43												
44	POHC DRE	Carbon Tetrachloride										
45	POHC Feedrate		lb/hr			2199	2450	2292				
46	Emissions Rate											
47	DRE	E1	%		>	99.999996		99.99998		99.99996		
48												
49	POHC DRE	Chlorobenzene										
50	POHC Feedrate		lb/hr			200	200	200				
51	Emissions Rate											
52	DRE	E1	%		>	99.9997	>	99.9997	>	99.9997		
53												
54	Sampling Train	PM, HCl/Cl2	E1									
55	Stack Gas Flowrate		dscfm			2748	2830	2816	2798.0			
56	O2		%			9.5	9.5	9.6	9.5			
57	Moisture		%			6	6.7	6.4	6.4			
58	Temperature		°F			98	101	100	99.7			
59												
60	HCl	E1	ppmv	y		0.007	0.006	0.008	0.007			
61	Cl2	E1	ppmv	y		0.30016	0.32148	0.34834	0.323			
62	Total Chlorine	E1	ppmv	y		0.608	0.649	0.705	0.654			
63												
64	<b>2003C3</b>	<b>(normal risk burn)</b>				R1	R2	R3	Cond Avg			
65												
66	PM	E1	gr/dscf	y		0.0077	0.0032	0.0034	0.0048			
67	CO (MHRA)	E1	ppmv	y		8.1	13.7	8.2	10.0			

	B	C	D	E	F	G	H	I	J	K	L	M
68	CO (RA)	E1	ppmv	y		7		10		8		8.3
69	HCl		µg/dscm	n		10.7		9.67		14.5		
70	Cl <sub>2</sub>		µg/dscm	n	nd	0.15		30.6		16.4		
71												
72												
73	Sampling Train	PM, HCl/Cl <sub>2</sub>	E1									
74	Stack Gas Flowrate		dscfm			2657		2615		2636		2636.0
75	O <sub>2</sub>		%			8.6		9		9		8.9
76	Moisture		%			5.8		5.7		5.7		5.7
77	Temperature		°F			97		96		96		96.3
78												
79	HCl	E1	ppmv	y		0.008		0.008		0.011		0.009
80	Cl <sub>2</sub>	E1	ppmv	y		0.00006		0.01226		0.00657		0.006
81	Total Chlorine	E1	ppmv	y		0.008		0.032		0.024		0.022

B		C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	<b>Feedstreams</b>																						
2																							
3																							
4																							
5	<b>2003C1</b>																						
6																							
7	Feedstream Number																						
8	Feed Class																						
9	Feed Class 2																						
10	Feedstream Description																						
11	Feed Rate																						
12	Density																						
13	(Total Feedrate)																						
14	Heating Value																						
15	Ash																						
16	Chlorine																						
17	Chromium (Hex)																						
18																							
19	Stack Gas Flowrate																						
20	O2																						
21																							
22	Thermal Feedrate																						
23	Estimated Firing Rate																						
24																							
25	Feedrate MTEC Calculations																						
26																							
27	Ash																						
28	Chlorine																						
29	Chromium																						
30																							
31	<b>2003C2</b>																						
32																							
33	Feedstream Number																						
34	Feed Class																						
35	Feed Class 2																						
36	Feedstream Description																						
37	Feed Rate																						
38	Density																						
39	(Total Feedrate)																						
40	Heating Value																						
41	Ash																						
42	Chlorine																						
43																							
44	Stack Gas Flowrate																						
45	O2																						
46																							
47	Thermal Feedrate																						
48	Estimated Firing Rate																						
49																							
50	Feedrate MTEC Calculations																						
51	Ash																						
52	Chlorine																						
53																							
54	<b>2003C3</b>																						
55																							
56	Feedstream Number																						
57	Feed Class																						
58	Feed Class 2																						

	Y	Z	AA	AB
1				
2				
3				
4				
5	R3		Cond Avg	
6				
7	F3		F3	
8	Total		Total	
9	Total		Total	
10	Total		Total	
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21		4.45		4.35
22		19.2		18.6
23				
24				
25				
26				
27		525.3		539.9
28	125861646.5		93082014.5	
29	1054.3		1093.2	
30				
31	R3		Cond Avg	
32				
33	F3		F3	
34	Total		Total	
35	Total		Total	
36	Total		Total	
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47		2.29		3.15
48				
49				
50				
51		80.5 41		45.1
52	247874073.3		188896325.5	
53				
54				
55				
56				
57				
58				

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
	Feedstream Description				Liquid waste	Liquid waste	Liquid waste	Liquid waste	Liquid waste	Liquid waste	Liquid waste	Total	Total	Total	Total	Total	Total	Total	Total				
59	Feed Rate				0.6	0.7	0.6	0.6	0.6														
60	Density				1.51	1.49	1.48	1.48	1.48														
62	(Total Feedrate)				3429	3948	3361	3361	3361														
63	Heating Value				2300	2400	2300	2300	2300														
64	Ash				0.68	0.783	0.533	0.533	0.533														
65	Chlorine				380.7	438.2	355.4	355.4	355.4														
66	Mercury				0.002	0.026	0.026	0.026	0.026														
67	Lead				1.24	0.698	0.448	0.448	0.448														
68	Cadmium			nd	0.0342	0.0342	0.0342	0.0342	0.0342														
69	Arsenic				2.18	2.08	1.93	1.93	1.93														
70	Beryllium				0.004	0.0388	0.0388	0.0388	0.0388														
71	Chromium				5.73	7.41	4.32	4.32	4.32														
72	Nickel				8.16	13.4	7.35	7.35	7.35														
73	Antimony			nd	0.828	0.828	0.828	0.828	0.828														
74	Selenium				5.09	4.31	4.32	4.32	4.32														
75	Stack Gas Flowrate				2657	2615	2636	2636	2636														
77	O2				8.6	9	9	9	9														
78																							
79	Thermal Feedrate				1.0	1.3	1.0	1.0	1.0														
80	Estimated Firing Rate				10.5	10.0	10.0	10.0	10.0														
81																							
82	Feedrate MTEC Calculations																						
83																							
84	Ash				77.3	93.4	63.1	63.1	63.1														
85	Chlorine				43252961	52271581	42056873	42056873	42056873														
86	Mercury				0.1	1.6	1.4	1.4	1.4														
87	Lead				63.8	43.4	23.5	23.5	23.5														
88	Cadmium			100	1.8	2.1	1.8	1.8	1.8														
89	Arsenic				112.2	129.5	101.4	101.4	101.4														
90	Beryllium				0.2	2.4	2.0	2.0	2.0														
91	Chromium				295.0	461.2	227.1	227.1	227.1														
92	Nickel				420.2	834.0	386.4	386.4	386.4														
93	Antimony			100	42.6	51.5	43.5	43.5	43.5														
94	Selenium				262.1	268.2	227.1	227.1	227.1														
95																							
96	SVM			2.7	65.6	4.7	25.3	25.3	25.3														
97	LVM				407.5	0.4	591.8	591.8	591.8														



	A	B	C	D	E	F
1	<b>Process Information</b>					
2						
3		Units	Run	Run	Run	Avg
4			1	2	3	
5	<b>2003C1</b>					
6						
7	Burner Temp.	°F	2660	2660	2660	2660
8	Steam Production Rate	lb/hr	10000	10000	11000	10333
9	Scrubber					
10	pH		8.8	8.6	8.6	8.7
11	L/G		6.5	6.4	6.4	6.4
12	Blowdown	gpm	25.6	25.6	25.6	25.6
13						
14	<b>2003C2</b>					
15						
16	Burner Temp.	°F	2129	2129	2129	2129
17	Steam Production Rate	lb/hr	7000	7000	7000	7000
18	Scrubber					
19	pH		8.7	8.6	8.7	8.7
20	L/G		8.2	8.1	8.1	8.1
21	Blowdown	gpm	25.6	25.6	25.6	25.6
22						
23	<b>2003C3</b>					
24						
25	Burner Temp.	°F	2300	2300	2300	2300
26	Steam Production Rate	lb/hr	6500	6500	6500	6500

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	PCDD/PCDF																
2	N																
3	Facility Name and ID:	Dow (Plaquemine LA), Boiler R-750															
4	Condition ID:	2003C3															
5	Condition/Test Date:	August 18-19, 1997															
6																	
7		I-TEF															
8		Wght Fact															
9																	
10	Detected in sample volume (ng)																
11	2,3,7,8-TCDD	1	nd	0.0070	0.0070	0.0035	0.0035	nd	0.007	0.0070	0.0035	0.0035	nd	0.01	0.0100	0.0050	0.0050
12	TCDD Other	0															
13	1,2,3,7,8-PCDD	0.5	nd	0.0100	0.0050	0.0050	0.0025	nd	0.01	0.0050	0.0050	0.0025	nd	0.02	0.0100	0.0100	0.0050
14	PCDD Other	0															
15	1,2,3,4,7,8-HxCDD	0.1	nd	0.0070	0.0007	0.0035	0.0004	nd	0.006	0.0006	0.0030	0.0003	nd	0.01	0.0010	0.0050	0.0005
16	1,2,3,6,7,8-HxCDD	0.1	nd	0.0060	0.0006	0.0030	0.0003	nd	0.005	0.0005	0.0025	0.0003	nd	0.008	0.0008	0.0040	0.0004
17	1,2,3,7,8,9-HxCDD	0.1	nd	0.0060	0.0006	0.0030	0.0003	nd	0.005	0.0005	0.0025	0.0003	nd	0.008	0.0008	0.0040	0.0004
18	HxCDD Other	0															
19	1,2,3,4,6,7,8-HpCDD	0.01		0.1100	0.0011	0.1100	0.0011		0.03	0.0003	0.0300	0.0003		0.03	0.0003	0.0300	0.0003
20	HpCDD Other	0															
21	OCDD	0.001		1.0000	0.0010	1.0000	0.0010		0.21	0.0002	0.2100	0.0002		0.18	0.0002	0.1800	0.0002
22	2,3,7,8-TCDF	0.1		0.1300	0.0130	0.1300	0.0130		0.13	0.0130	0.1300	0.0130		0.17	0.0170	0.1700	0.0170
23	TCDF Other	0															
24	1,2,3,7,8-PCDF	0.05		0.0600	0.0030	0.0600	0.0030		0.06	0.0030	0.0600	0.0030		0.06	0.0030	0.0600	0.0030
25	2,3,4,7,8-PCDF	0.5		0.0200	0.0100	0.0200	0.0100		0.03	0.0150	0.0300	0.0150	nd	0.01	0.0050	0.0050	0.0025
26	PCDF Other	0															
27	1,2,3,4,7,8-HxCDF	0.1		0.1000	0.0100	0.1000	0.0100		0.1	0.0100	0.1000	0.0100		0.08	0.0080	0.0800	0.0080
28	1,2,3,6,7,8-HxCDF	0.1		0.0300	0.0030	0.0300	0.0030		0.03	0.0030	0.0300	0.0030		0.03	0.0030	0.0300	0.0030
29	2,3,4,6,7,8-HxCDF	0.1		0.0300	0.0030	0.0300	0.0030		0.02	0.0020	0.0200	0.0020		0.02	0.0020	0.0200	0.0020
30	1,2,3,7,8,9-HxCDF	0.1	nd	0.0040	0.0004	0.0020	0.0002	nd	0.004	0.0004	0.0020	0.0002	nd	0.006	0.0006	0.0030	0.0003
31	HxCDF Other	0															
32	1,2,3,4,6,7,8-HpCDF	0.01		0.1600	0.0016	0.1600	0.0016		0.14	0.0014	0.1400	0.0014		0.13	0.0013	0.1300	0.0013
33	1,2,3,4,7,8,9-HpCDF	0.01		0.2000	0.0020	0.2000	0.0020		0.03	0.0003	0.0300	0.0003		0.03	0.0003	0.0300	0.0003
34	HpCDF Other	0															
35	OCDF	0.001		0.4800	0.0005	0.4800	0.0005		0.24	0.0002	0.2400	0.0002		0.19	0.0002	0.1900	0.0002
36																	
37	Gas sample volume (dscf)				115.65		115.65			124.50		124.50			121.70		121.70
38	O2 (%)				8.60		8.60			9.00		9.00			9.00		9.00
39																	
40	PCDD/PCDF (ng in sample)				0.0625		0.0553			0.0625		0.0553			0.0635		0.0494
41	PCDD/PCDF (ng/dscm @ 7% O2)			22.9	0.0216		0.0191	22.4		0.0207		0.0184	44.4		0.0215		0.0167
42																	
43	TEQ Cond Avg																