

US EPA ARCHIVE DOCUMENT

A	B	C
1	<b>Source Description</b>	
2		
3	Phase I ID No.	477
4	EPA ID No.	MOD050226075
5	Facility Name	AMERICAN CYANAMID
6	Facility Location	
7	City	HANNIBAL
8	State	MO
9	Unit ID Name/No.	PROWL UNIT B
10	Other Sister Facilities	
11	Number of Sister Facilities	0
12	Combustor Class	Onsite incinerator
13	Combustor Type	Liquid injection
14	Combustor Characteristics	John Zink incinerator
15	Capacity (MMBtu/hr)	
16	Soot Blowing	
17	APCS Detailed Acronym	QT/PT/VS/DM
18	APCS General Class	WQ, LEWS, HEWS
19	APCS Characteristics	Quench, packed tower, venturi scrubber (Calvert fixed throat), demister
20	Hazardous Wastes	Liq
21	Haz Waste Description	HW Liq-Aqueous/Organic
22	Supplemental Fuel	Natural gas
23		
24	Stack Characteristics	
25	Diameter (ft)	4.0
26	Height (ft)	103.0
27	Gas Velocity (ft/sec)	16.9
28	Gas Temperature (°F)	182.3
29		
30	Permitting Status	
31	HWC Burn Status (Date if Terminated)	

	B	C
1	<b>Condition Description</b>	
2		
3	<b>477C1</b>	
4		
5	Report Name/Date	Test Report for Trial Burns on the Prowl Incinerator at the American Cyanamid Facility, Hannibal, Missouri, Prepared by MRI, Project # 9353-L(02), August 9, 1989
6	Report Prepare	MRI
7	Testing Firm	MRI
8	Cond Descr	ORGANICS SPIKED INTO LIQUID AND AQUEOUS WASTES
9	Testing Dates	May 13-15, 1989
10	Cond Dates	May-89
11		
12	<b>477C2</b>	
13		
14	Report Name/Date	Test Report for Trial Burns on the Prowl Incinerator at the American Cyanamid Facility, Hannibal, Missouri, Prepared by MRI, Project # 9353-L(02), August 9, 1989
15	Report Prepare	MRI
16	Testing Firm	MRI
17	Cond Descr	ORGANICS SPIKED INTO LIQUID WASTE ONLY
18	Testing Dates	May 16, '89
19	Cond Dates	May-89
20		
21	<b>477C3</b>	
22		
23	Report Name/Date	Re-Test Report for Trial Burns on the Prowl Incinerator at the American Cyanamid Facility, Hannibal, Missouri, Prepared by MRI, Project # 9353-L(02), November 6, 1989
24	Report Prepare	MRI
25	Testing Firm	MRI
26	Cond Descr	LOW CO LEVELS, AQUEOUS (FIREWATER) SPIKED WITH MCB
27	Testing Dates	October 5-7, 1989
28	Cond Dates	Oct-89
29		
30	<b>477C4</b>	
31		
32	Report Name/Date	Re-Test Report for Trial Burns on the Prowl Incinerator at the American Cyanamid Facility, Hannibal, Missouri, Prepared by MRI, Project # 9353-L(02), November 6, 1989
33	Report Prepare	MRI
34	Testing Firm	MRI
35	Cond Descr	HIGH CO LEVELS, AQUEOUS (ACTUAL PLANT WASTE) SPIKED WITH MCB
36	Testing Dates	October 8-9, 1989
37	Cond Dates	Oct-89
38		
39	<b>477C5</b>	
40		
41	Report Name/Date	Dioxin/Furan Emission Test Results for Incinerators Final Report, For American Cyanid Company, Prepared by MRI, Project # 4435, August 13, 1996
42	Report Prepare	MRI
43	Testing Firm	MRI
44	Cond Descr	DIOXIN/FURAN EMISSIONS TESTING - AQUEOUS/ORGANIC WASTE
45	Testing Dates	
46	Cond Dates	Aug-96

	B	C	D	E	F	G	H	I	J	K	L	M
1	<b>Stack Gas Emissions 2</b>											
2												
3												
4	<b>477C1</b>					R1		R2		R3		Cond Avg
5												
6	PM	E1	gr/dscf	y		0.0405		0.0311		0.0328		0.0348
7	CO (RA)	E1	ppmv	y		34.2		34.3		32.8		33.8
8	HC (RA)	E1	ppmv	y		2.3		3.1		2.7		2.7
9	HCl	E1	ppmv	y	nd	7.8	nd	4.3	nd	3.5		5.2
10	Total Chlorine	E1	ppmv	y		7.8		4.3		3.5		5.2
11												
12	Sampling Train	Particulate	E1									
13	Stack Gas Flowrate		dscfm			15299.0		15612.0		15520.0		
14	O2		%			7.3		6.1		6.7		
15	Moisture		%			50.3		50.0		51.0		
16	Temperature		°F			178.0		178.0		180.0		
17												
18	Formic acid	E1	%			99.9906		99.9804		99.9932		
19	Tetrachloroethene	E1	%			99.99998		99.99999		99.99999		
20												
21	<b>477C2</b>	one run only?				R1		R2		R3		Cond Avg
22												
23	PM	E1	gr/dscf	y		0.0366						0.0366
24	CO (RA)	E1	ppmv	y		296.8						296.8
25	HC (RA)	E1	ppmv	y		5.2						5.23
26	HCl	E1	ppmv	y	nd	5.0						4.99
27												
28	Tetrachloroethene	E1	%			99.99999						
29												
30	Sampling Train	Particulate										
31	Stack Gas Flowrate		dscfm			14106.0						
32	O2		%			5.2						
33	Moisture		%			53.1						
34	Temperature		°F			181.0						
35												
36	<b>477C3</b>					R1		R2		R3		Cond Avg
37												
38	CO (RA)	E1	ppmv	y		7.8		15.9	nd	1.0		8.2
39	HC (RA)	E1	ppmv	y				1.0	nd	1.0		1.0
40												
41	Sampling Train	VOC	E1									
42	Stack Gas Flowrate		dscfm			16034.0		16861.0		16544.0		
43	O2		%			6.7		6.9		6.8		
44	Moisture		%			52.8		51.3		51.9		
45	Temperature		°F			181.0		183.5		182.5		
46												
47	Chlorobenzene	E1	%			99.99925		99.99828		99.99852		
48												
49	<b>477C4</b>					R1		R2		R3		Cond Avg
50												
51	CO (RA)	E1	ppmv	y		267.9		257.0		259.4		261.4
52	HC (RA)	E1	ppmv	y		9.4		13.0		7.1		9.8
53												
54	Sampling Train	VOC	E1									
55	Stack Gas Flowrate		dscfm			17545.0		17911.0		17096.0		
56	O2		%			8.3		8.2		8.1		
57	Moisture		%			48.7		46.9		49.4		
58	Temperature		°F			178.0		180.0		180.0		
59												
60	Chlorobenzene	E1	%			99.99507		99.99608		99.9977		
61												
62	<b>477C5</b>					R1		R2		R3		Cond Avg
63												
64	CO (RA)	E1	ppmv	y		170.0		178.0		174.0		174.0
65	HC (RA)	E1	ppmv	y		0.2		0.2		2.1		0.8
66												
67	Sampling Train	Dioxin & Fu	E1									
68	Stack Gas Flowrate		dscfm			14921.0		14845.0		14725.0		
69	O2		%			7.4		8.0		7.8		
70	Moisture		%			48.4		48.4		49.0		
71	Temperature		°F			178.0		178.0		179.0		

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	
1	<b>Feedstream 2</b>																											
2																												
3																												
4	<b>477C1</b>		R1		R2		R3		R1		R2		R3		R1		R2		R3		R1		R2		R3			
5																												
6	Feedstream Number		F1		F1		F1		F2		F2		F2															
7	Feed Class		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW															
8	Feed Class 2														HW		HW		HW					Spike		Spike		Spike
9	Feedstream Description		Aqueous		Aqueous		Aqueous		Organic		Organic		Organic											Organic spike		Organic spike		Organic spike
10	Feedrate	lb/hr	17520		17520		18480		3120		3060		3180															
11	Feedrate	scfm																										
12	Heating value	Btu/lb	235		198		81		11776		10927		12100															
13	Ash	wt %	14.72		15.06		14.62		0.0002		0.0074		0.0052															
14	Chlorine	ppmw	130		290		160		75700		138400		39700															
15																												
16	Gas flowrate		15299		15612		15520		15299		15612		15520											15299		15612		15520
17	Oxygen		7.3		7.3		6.7		7.3		7.3		6.7											7.3		7.3		6.7
18																												
19	Thermal Feedrate	MMBtu/hr	4.1		3.5		1.5		36.7		33.4		38.5															
20	Estimated Firing Rate	MMBtu/hr																										
21																												
22	Feedrate MTEC																											
23	Ash	mg/dscm	46057.9		46177.0		45568.8		0.1		4.0		2.8		46058.1		46181.0		45571.6									
24	Chlorine	ug/dscm	40676		88920		49870		4218063		7411816		2129296		4258739.2		7500735.6		2179166.3									
25																												
26	<b>477C2</b>		R1		R2		R3		R1		R2		R3		R1		R2		R3		R1		R2		R3			
27																												
28	Feedstream Number		F1		F1		F1		F2		F2		F2															
29	Feed Class		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW															
30	Feed Class 2														HW		HW		HW					Spike		Spike		Spike
31	Feedstream Description		Aqueous		Aqueous		Aqueous		Organic		Organic		Organic											Organic spike		Organic spike		Organic spike
32	Feedrate	lb/hr	18480						3060																			
33	Heating value	Btu/lb							11877																			
34	Ash	wt %							0.0029																			
35	Chlorine	ppmw	7900						57700																			
36																												
37	Gas flowrate	dscfm	14106						14106																			
38	Oxygen	%	5.2						5.2																			
39																												
40	Thermal Feedrate	MMBtu/hr							36.3																			
41	Estimated Firing Rate	MMBtu/hr																										
42																												
43	Ash	mg/dscm																										
44	Chlorine	ug/dscm	2451965.16						2965394						5417360													
45																												
46	<b>477C3</b>		R1		R2		R3		R1		R2		R3											R1		R2		R3
47																												
48	Feedstream Number		F1		F1		F1		F2		F2		F2															
49	Feed Class 2		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW															
50	Feed Class														HW		HW		HW					Spike		Spike		Spike
51	Feedstream Description		Aqueous		Aqueous		Aqueous		Organic		Organic		Organic											Organic spike		Organic spike		Organic spike
52	Feedrate	lb/hr	17400		17400		17400		3360		3360		3300											1230		1045		992
53	Heating value	Btu/lb	565		823		948		12566		12466		12457															
54	Ash	wt %																										
55	Thermal Feedrate	MMBtu/hr	9.8		14.3		16.5		42.2		41.9		41.1															
56																												
57	<b>477C4</b>		R1		R2		R3		R1		R2		R3											R1		R2		R3
58																												
59	Feedstream Number		F1		F1		F1		F2		F2		F2											F3		F3		F3
60	Feed Class		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW											Spike		Spike		Spike

	B	AD	AE	AF	AH	AJ	AL	AM	AN	AO	AP
1	<b>Feedstream 2</b>										
2											
3											
4	<b>477C1</b>	R1	R2	R3	R1	R2	R3				Cond Avg
5											
6	Feedstream Number	F3	F3	F3	F4	F4	F4	F4			F4
7	Feed Class	NG	NG	NG	Total	Total	Total	Total			Total
8	Feed Class 2	MF	MF	MF	Total	Total	Total	Total			Total
9	Feedstream Description	Nat gas	Nat gas	Nat gas	Total	Total	Total	Total			Total
10	Feedrate										
11	Feedrate	482.5	440.5	471.5							
12	Heating value										
13	Ash										
14	Chlorine										
15											
16	Gas flowrate	15299	15612	15520	15299	15612	15520				15477
17	Oxygen	7.3	7.3	6.7	7.3	7.3	6.7				7.1
18											
19	Thermal Feedrate	30.3975	27.8	29.7	71.3	64.7	69.7				68.5
20	Estimated Firing Rate				66.54	67.90	70.46				68.30
21											
22	Feedrate MTEC										
23	Ash				46058.1	46181.0	45571.6				45936.9
24	Chlorine				4258739	7500736	2179166				4646214
25											
26	<b>477C2</b>	R1	R2	R3	R1	R2	R3				Cond Avg
27											
28	Feedstream Number	F3	F3	F3	F4	F4	F4	F4			F4
29	Feed Class	NG	NG	NG	Total	Total	Total	Total			Total
30	Feed Class 2	MF	MF	MF	Total	Total	Total	Total			Total
31	Feedstream Description	Nat gas	Nat gas	Nat gas	Total	Total	Total	Total			Total
32	Feedrate	355.5									
33	Heating value										
34	Ash										
35	Chlorine										
36											
37	Gas flowrate				14106						
38	Oxygen				5.2						
39											
40	Thermal Feedrate										
41	Estimated Firing Rate				70.75						70.75
42											
43	Ash										
44	Chlorine				5417360						5417360
45											
46	<b>477C3</b>	R1	R2	R3	R1						
47											
48	Feedstream Number	F3	F3	F3	F4	F4	F4	F4			F4
49	Feed Class 2	NG	NG	NG	Total	Total	Total	Total			Total
50	Feed Class	MF	MF	MF	Total	Total	Total	Total			Total
51	Feedstream Description	Nat gas	Nat gas	Nat gas	Total	Total	Total	Total			Total
52	Feedrate	354	380	389							
53	Heating value										
54	Ash										
55	Thermal Feedrate										
56											
57	<b>477C4</b>	R1	R2	R3							
58											
59	Feedstream Number	F4	F4	F4							
60	Feed Class	NG	NG	NG							

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	
61	Feedstream Description				Aqueous	Aqueous	Aqueous		Aqueous	Organic	Organic	Organic										Organic spike	Organic spike	Organic spike				
62	Feedrate	lb/hr			17400	17400	17460		3360	3360	3360											1495	1442	1561				
63	Heating Value	Btu/lb			1289	1294	1137		12522	12318	12592																	
64	Ash	wt %																										
65	Thermal Feedrate	MMBtu/hr			22.4	22.5	19.9		42.1	41.4	42.3																	
66																												
67	<b>477C5</b>				R1	R2	R3		R1	R2	R3											R1	R2	R3				
68																												
69	Feedstream Number				F1	F1	F1		F2	F2	F2											F3	F3	F3				
70	Feed Class				Liq HW	Liq HW	Liq HW		Liq HW	Liq HW	Liq HW											Total	Total	Total				
71	Feedstream Description				Aqueous	Aqueous	Aqueous		Organic	Organic	Organic											Total	Total	Total				
72	Feedrate	lb/hr																										
73	Heating value	Btu/lb																										
74	Ash	wt %																										
75	Chlorine	ppmw			3880	3290	3690		36	36	39											3916	3326	3729				

	B	AD	AE	AF	AH	AJ	AL	AM	AN	AO	AP
61	Feedstream Description	Nat gas		Nat gas		Nat gas					
62	Feedrate		53		71		79				
63	Heating Value										
64	Ash										
65	Thermal Feedrate										
66											
67	<b>477C5</b>		Cond Avg								
68											
69	Feedstream Number		F3								
70	Feed Class		Total								
71	Feedstream Description		Total								
72	Feedrate										
73	Heating value										
74	Ash										
75	Chlorine		3657								



	C	D	E	F	G
1	<b>Process Information 2</b>				
2					
3	<b>477C1</b>		R1	R2	R3
4					
5	Combustion Temperature	F	1526	1526	1533.2
6	WS Pressure Drop	in H2O	29	29	27
7	WS pH		5.96	5.69	6
8					
9	<b>477C2</b>				
10					
11	Combustion Temperature	F	1556.6		
12	WS Pressure Drop	in H2O	27		
13	WS pH		5.86		
14					
15	<b>477C3</b>				
16					
17	Combustion Temperature	F	1536.8	1567.4	1536.8
18					
19	<b>477C4</b>				
20					
21	Combustion Temperature	F	1529.6	1526	1524.2

	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	<b>477C5</b>													
2														
3	ng/dscm	I-TEF		Total	Run 1 Total	TEQ		Total	Run 2 Total	TEQ		Total	Run 3 Total	TEQ
4		Wt Fact		Full ND	1/2 ND	1/2 ND		Full ND	1/2 ND	1/2 ND		Full ND	1/2 ND	1/2 ND
5	4D 2378	1	1	0.002	0.001	0.001	1	0.001	0.001	0.001	1	0.002	0.001	0.001
6	4D Other	0		0.001	0.001	0.000		0.000	0.000	0.000		0.000	0.000	0.000
7	4D Total	0		0.003	0.003	0.000	1	0.001	0.001	0.000	1	0.002	0.001	0.000
8	5D 12378	0.5	1	0.002	0.001	0.000	1	0.002	0.001	0.000	1	0.002	0.001	0.001
9	5D Other	0		0.000	0.000	0.000		0.000	0.000	0.000		0.000	0.000	0.000
10	5D Total	0	1	0.002	0.001	0.000	1	0.002	0.001	0.000	1	0.002	0.001	0.000
11	6D 123478	0.1	1	0.002	0.001	0.000	1	0.002	0.001	0.000	1	0.003	0.001	0.000
12	6D 123678	0.1	1	0.002	0.001	0.000	1	0.002	0.001	0.000	1	0.002	0.001	0.000
13	6D 123789	0.1	1	0.002	0.001	0.000	1	0.002	0.001	0.000	1	0.003	0.001	0.000
14	6D Other	0		-0.002	-0.002	0.000		-0.002	-0.002	0.000		0.004	0.004	0.000
15	6D Total	0		0.004	0.004	0.000		0.004	0.004	0.000		0.012	0.012	0.000
16	7D 1234678	0.01		0.007	0.007	0.000		0.009	0.009	0.000		0.013	0.013	0.000
17	7D Other	0		0.006	0.006	0.000		0.006	0.006	0.000		0.012	0.012	0.000
18	7D Total	0		0.013	0.013	0.000		0.015	0.015	0.000		0.025	0.025	0.000
19	8D	0.001		0.025	0.025	0.000		0.027	0.027	0.000		0.030	0.030	0.000
20	4F 2378	0.1	1	0.001	0.001	0.000	2	0.002	0.002	0.000	2	0.002	0.002	0.000
21	4F Other	0		0.011	0.011	0.000		0.011	0.011	0.000		0.055	0.055	0.000
22	4F Total	0		0.012	0.012	0.000		0.013	0.013	0.000		0.056	0.056	0.000
23	5F 12378	0.05	2	0.003	0.003	0.000	1	0.002	0.001	0.000	2	0.004	0.004	0.000
24	5F 23478	0.5	2	0.004	0.004	0.002	1	0.002	0.001	0.000		0.007	0.007	0.004
25	5F Other	0		-0.003	-0.003	0.000		0.001	0.001	0.000		0.034	0.034	0.000
26	5F Total	0		0.004	0.004	0.000		0.004	0.004	0.000		0.045	0.045	0.000
27	6F 123478	0.1		0.004	0.004	0.000	2	0.003	0.003	0.000		0.007	0.007	0.001
28	6F 123678	0.1	2	0.004	0.004	0.000	2	0.003	0.003	0.000		0.007	0.007	0.001
29	6F 123789	0.1	1	0.001	0.001	0.000	1	0.002	0.001	0.000	2	0.004	0.004	0.000
30	6F 234678	0.1	2	0.005	0.005	0.000	2	0.004	0.004	0.000		0.008	0.008	0.001
31	6F Other	0		0.004	0.004	0.000		0.009	0.009	0.000		0.026	0.026	0.000
32	6F Total	0		0.018	0.018	0.000		0.019	0.019	0.000		0.051	0.051	0.000
33	7F 1234678	0.01		0.011	0.011	0.000		0.009	0.009	0.000		0.021	0.021	0.000
34	7F 1234789	0.01	2	0.003	0.003	0.000	2	0.002	0.002	0.000	2	0.005	0.005	0.000
35	7F Other	0		0.003	0.003	0.000		0.008	0.008	0.000		-0.003	-0.003	0.000
36	7F Total	0		0.018	0.018	0.000		0.019	0.019	0.000		0.023	0.023	0.000
37	8F	0.001		0.009	0.009	0.000		0.009	0.009	0.000		0.018	0.018	0.000
38	Total PCDD/PCDF			0.108	0.107			0.113	0.111			0.264	0.262	
39	TEQ		51.2	0.007		0.006	74.3	0.005		0.003	34.7	0.011		0.009