Source Description

Phase II ID No.	840
EPA ID No.	OHD004233003
Facility Name	Bayer (Monsanto Co. Port Plastic Plant)
Facility Location	
City	Addyston
State	OH
Unit ID Name/No.	Boiler No.4
Other Sister Facilities	None
Combustor	Watertube boiler
Combustor Characteristics	Foster-Wheeler, three firing guns, 48 MMBtu/hr, 35,000 lb/hr steam
Capacity (MMBtu/hr)	48
Soot Blowing	Yes, twice per day
APCS	None
APCS Characteristics	NA
Hazardous Wastes	Liq
Haz Waste Description	Liquid waste byproducts (spent monomer)
Supplemental Fuel	Natural gas
Stack Characteristics	
Diameter (ft)	4.0
Height (ft)	50.0
Gas Velocity (ft/sec)	30.8
Gas Temperature (°F)	508
Permitting Status	Tier I for metals and chlorine
Report Name/Date	Periodic Recertification of Compliance Boiler No. 4 Monsanto Company Port Plastics Plant, December 1994
Report Prepare	B3 Systems, Inc.
Testing Firm	METCO Environmental
Condition 1	
Testing Dates	September 28, 1994
Condition Descr	CoC; max feed Bldg. 30 spent monomer and resimene distillate
Content	PM, CO
Condition 2	
Testing Dates	September 29, 1994
Condition Descr	CoC; max feed Bldg. 9 spent monomer and resimene distillate
Content	PM, CO
Report Name/Date	Compliance Recertification for Bayer's Boiler No. 4 Pursuant to the BIF Regulations; November 1997 Doc No 4690-047-400
Report Prepare	Bayer Corporation-Polymers Division-Addyson Facility
Testing Firm	ENSR
Condition 3	
Testing Dates	October 1, 1997
Condition Descr	CoC; max feed Bldg. 30 spent monomer and resimene distillate
Content	Stack PM, HCl and Cl2; Feed analysis
Condition 4	
Testing Dates	October 2, 1997

Condition Descr	CoC; max feed Bldg. 9 spent monomer and resimene distillate
Content	Stack PM, HCl and Cl2; Feed analysis

Stack Gas Emissions

	Units	7% O2	1	3 Sootblow	4	Cond Avg
840C1						
PM	gr/dscf	y	0.0275	0.031	0.0208	0.0264
CO (RA)	ppmv	y	7.26	1.94	0.89	3.4
CO (MHRA)	ppmv	y	9.05	8.81	0.99	6.3
Sampling Train 1 -- PM						
Gas Flowrate	dscfm		10263	9953	10678	10298.0
Oxygen	%		7.8	7.4	6.4	7.2
Moisture	%		22.1	18.86	18.14	19.7
Gas Temperature	°F		490	500	493	494.3
840C2			1	2	3	
PM	gr/dscf	y	0.0218	0.0191	0.0256	0.0222
CO (RA)	ppmv	y	1.19	1.56	3.9	2.2
CO (MHRA)	ppmv	y	1.27	1.61	5.9	2.9
Sampling Train 1 -- PM						
Gas Flowrate	dscfm		10638	11286	10234	10719.3
Oxygen	%		7.7	7.7	7.7	7.7
Moisture	%		17.89	17.99	18.06	18.0
Gas Temperature	°F		505	517	511	511.0
840C3						
PM	gr/dscf	y				0.0463
CO (RA)	ppmv	y	3.63	5.06	4.32	4.3
CO (MHRA)	ppmv	y	2.95	8.69	4.31	5.3
Sampling Train 1 -- PM						
Gas Flowrate	dscfm		10914	10920	10946	10926.7
Oxygen	%		8.97	7.73	7.47	8.1
Moisture	%		15.7	15.5	15.9	15.7
Gas Temperature	°F		511	522.6	517.5	517.0
840C4			1	2	3	
PM	gr/dscf	y	0.0352	0.0353	0.0487	0.0397
CO (RA)	ppmv	y	2.06	6.62	7.94	5.5
CO (MHRA)	ppmv	y	2.52	5.53	7.68	5.2
HCl	ppmv	n	0.37	0.31	0.38	0.35
Chlorine	ppmv	n	0.0064	0.006	0.00555	0.0
Sampling Train 1 -- PM						
Gas Flowrate	dscfm		10374	10138	9880	10130.7
Oxygen	%		7.17	7.27	7.4	7.3

Moisture	%		15.3	15.7	15.4	15.5
Gas Temperature	°F		505	508	509	507.3
HCl	ppmv	y	0.4	0.3	0.4	0.4
Cl2	ppmv	y	0.0	0.0	0.0	0.0
Total chlorine	ppmv	y	0.4	0.3	0.4	0.4

Feedstreams

840C1

Feedstream Desc.			Cond Avg Haz Waste Bldg 30 Monomer	Spike CuSO4		Non Haz Waste Resim. Dist.	Nat Gas	Total
Feedrate	g/hr		548267	11212		1484236	446581	
Thermal Feedrate	MMBtu/hr		20.9			1.6	20.4	
Heating Value	Btu/lb		17267.0			500.0		
Viscosity	cp		6.0			6.0		
Density	g/ml		0.899			1.039		
Ash	g/hr	nd	54.82	1865	nd	141.02		
Chlorine	g/hr	nd	54.82		nd	141.02		
Sb	g/hr	nd	5.87		nd	141.02		
As	g/hr	nd	0.056		nd	0.14		
Ba	g/hr	nd	0.22		nd	0.562		
Be	g/hr	nd	0.006		nd	0.014		
Cd	g/hr	nd	0.002		nd	0.006		
Cr	g/hr	nd	0.022		nd	0.076		
Pb	g/hr	nd	2.754		nd	7.074		
Hg	g/hr	nd	0.045		nd	0.113		
Ag	g/hr	nd	2.748		nd	7.074		
Tl	g/hr	nd	43.98		nd	112.46		
Stack Gas Flowrate	dscfm		10298	10298		10298		10298
Oxygen	%		7.2	7.2		7.2		7.2
Firing Rate	MMBtu/hr		20.9			1.6	20.4	42.9
Estimated Firing Rate	MMBtu/hr							45.1
Feedrate MTEC Calculations								
Ash	mg/dscm	nd	3.2	108.2	nd	8.2		
Chlorine	ug/dscm	nd	3180.5		nd	8181.6		
Sb	ug/dscm	nd	340.6		nd	8181.6		
As	ug/dscm	nd	3.2		nd	8.1		
Ba	ug/dscm	nd	12.8		nd	32.6		
Be	ug/dscm	nd	0.3		nd	0.8		
Cd	ug/dscm	nd	0.1		nd	0.3		
Cr	ug/dscm	nd	1.3		nd	4.4		
Pb	ug/dscm	nd	159.8		nd	410.4		
Hg	ug/dscm	nd	2.6		nd	6.6		
Ag	ug/dscm	nd	159.4		nd	410.4		
Tl	ug/dscm	nd	2551.6		nd	6524.6		
SVM	ug/dscm		79.9			205.4		
LVM	ug/dscm		2.4			6.7		

840C2

Feedstream Desc		Haz Waste Bldg 9 Monomer	Spike CuSO4	Non Haz Waste Resim. Dist.	Nat Gas	Total
Feedrate	g/hr	564213	11399	1395426	446369	

Thermal Feedrate	MMBtu/hr		21.5			1.5	18.9	
Heating Value	Btu/lb		17367			500		
Viscosity	cp		6.0			6.00		
Density	g/ml		0.888			1.035		
Ash	g/hr	nd	55.941	2052	nd	139.541		
Chlorine	g/hr	nd	55.941		nd	139.541		
Sb	g/hr	nd	5.561		nd	13.954		
As	g/hr	nd	0.056		nd	0.14		
Ba	g/hr	nd	0.225		nd	0.559		
Be	g/hr	nd	0.006		nd	0.014		
Cd	g/hr	nd	0.003		nd	0.006		
Cr	g/hr	nd	0.023		nd	0.079		
Pb	g/hr	nd	2.794		nd	6.979		
Hg	g/hr	nd	0.045		nd	0.112		
Ag	g/hr	nd	2.794		nd	6.976		
Tl	g/hr	nd	44.625		nd	111.656		
Stack Gas Flowrate	dscfm		10719.3	10719.3		10719.3		10719
Oxygen	%		7.7	7.7		7.7		7.7
Firing Rate	MMBtu/hr		21.5			1.5	18.9	41.9
Estimated Firing Rate	MMBtu/hr							45.3
Feedrate MTEC Calculations								
Ash	mg/dscm	nd	3.2	118.7	nd	8.1		
Chlorine	ug/dscm	nd	3235.2		nd	8095.8		
Sb	ug/dscm	nd	321.6		nd	809.6		
As	ug/dscm	nd	3.2		nd	8.1		
Ba	ug/dscm	nd	13.0		nd	32.4		
Be	ug/dscm	nd	0.3		nd	0.8		
Cd	ug/dscm	nd	0.2		nd	0.3		
Cr	ug/dscm	nd	1.3		nd	4.6		
Pb	ug/dscm	nd	161.6		nd	404.9		
Hg	ug/dscm	nd	2.6		nd	6.5		
Ag	ug/dscm	nd	161.6		nd	404.7		
Tl	ug/dscm	nd	2580.8		nd	6478.0		
SVM	ug/dscm		80.9			202.6		
LVM	ug/dscm		2.5			6.8		

840C3

			Haz Waste		Non Haz Waste	
Feedstream Desc.			Spent Monomer		Resim. Dist.	Ash Spike
Feedrate	g/hr		554291		1176620	
Heating Value	Btu/lb		18667		250	
Viscosity	cp		3		3	
Density	g/ml		0.904		1.066	
Ash	g/hr	nd	33	nd	102	2233
Chlorine	g/hr	nd	146.3	nd	235.3	
Sb	g/hr	nd	5.543	nd	11.766	
As	g/hr	nd	0.018	nd	0.020	

Ba	g/hr	nd	0.218	nd	0.463		
Be	g/hr	nd	0.002	nd	0.004		
Cd	g/hr	nd	0.002	nd	0.004		
Cr	g/hr	nd	0.056		0.090		
Pb	g/hr	nd	2.735	nd	5.805		
Hg	g/hr	nd	0.044	nd	0.094		
Ag	g/hr	nd	0.554	nd	1.177		
Tl	g/hr	nd	11.086	nd	23.140		
Stack Gas Flowrate	dscfm		10926.7		10926.7	10926.7	
Oxygen	%		8.1		8.1	8.1	
Firing Rate	MMBtu/hr		22.8		0.6		
Estimated Firing Rate	MMBtu/hr						44.9
Feedrate MTEC Calculations							
Ash	mg/dscm	nd	1.9	nd	5.9	130.2	138.1
Chlorine	ug/dscm	nd	8531.0	nd	13719.0		
Sb	ug/dscm	nd	323.1	nd	686.0		
As	ug/dscm	nd	1.1	nd	1.2		
Ba	ug/dscm	nd	12.7	nd	27.0		
Be	ug/dscm	nd	0.1	nd	0.2		
Cd	ug/dscm	nd	0.1	nd	0.2		
Cr	ug/dscm	nd	3.3		5.3		
Pb	ug/dscm	nd	159.4	nd	338.4		
Hg	ug/dscm	nd	2.6	nd	5.5		8.1
Ag	ug/dscm	nd	32.3	nd	68.6		
Tl	ug/dscm	nd	646.3	nd	1349.0		
SVM	ug/dscm		79.8		169.3		249.1
LVM	ug/dscm		2.2		3.3		5.5

840C4

			Haz Waste		Non Haz Waste	
Feedstream Desc			Spent Monomer		Resim. Dist.	Ash Spike
Feedrate	g/hr		557919		1183424	
Heating Value	Btu/lb		16300		250	
Viscosity	cp		3		3	
Density	g/ml		0.909		1.064	
Ash	g/hr		20	nd	36	2248
Chlorine	g/hr	nd	158.4	nd	236.7	
Sb	g/hr	nd	5.579	nd	11.834	
As	g/hr	nd	0.009	nd	0.020	
Ba	g/hr	nd	0.216	nd	0.469	
Be	g/hr	nd	0.002	nd	0.004	
Cd	g/hr	nd	0.002	nd	0.004	
Cr	g/hr	nd	0.018		0.058	
Pb	g/hr	nd	2.715	nd	5.878	
Hg	g/hr	nd	0.045	nd	0.095	
Ag	g/hr	nd	0.558	nd	1.183	
Tl	g/hr	nd	10.786	nd	23.274	

Stack Gas Flowrate	dscfm		10130.7		10130.7	10130.7	
Oxygen	%		7.3		7.3	7.3	
Firing Rate	MMBtu/hr		20.0		0.7		
Estimated Firing Rate	MMBtu/hr						44.1
Feedrate MTEC Calculations							
Ash	mg/dscm	nd	1.2	nd	2.1	133.4	
Chlorine	ug/dscm	nd	9399.1	nd	14040.0		
Sb	ug/dscm	nd	331.0	nd	702.0		
As	ug/dscm	nd	0.6	nd	1.2		
Ba	ug/dscm	nd	12.8	nd	27.8		
Be	ug/dscm	nd	0.1	nd	0.2		
Cd	ug/dscm	nd	0.1	nd	0.2		
Cr	ug/dscm	nd	1.1		6.8		
Pb	ug/dscm	nd	161.1	nd	348.7		
Hg	ug/dscm	nd	2.6	nd	5.6		
Ag	ug/dscm	nd	33.1	nd	70.2		
Tl	ug/dscm	nd	639.8	nd	1380.6		
SVM	ug/dscm		80.6		174.4		
LVM	ug/dscm		0.9		4.1		

BIF Tier I Feedrate Limits

Antimony	g/hr	245.0
Arsenic	g/hr	1.9
Barium	g/hr	40909.0
Beryllium	g/hr	3.4
Cadmium	g/hr	4.6
Chromium	g/hr	0.7
Lead	g/hr	73.6
Mercury	g/hr	65.5
Silver	g/hr	2455.0
Thallium	g/hr	409.0
Total Cl	g/hr	5950.0

Process Information

840C1

Steam Prod Rate	lb/hr	29500

840C2

Steam Prod Rate	lb/hr	30000

840C3

Steam Prod Rate	lb/hr	29734
Combustion Zone Temp	°F	1438

840C4

Steam Prod Rate	lb/hr	30467
Combustion Zone Temp	°F	1465