

Niagara CAER Group Chemical Companies

**National Emissions Reduction
Masterplan (NERM)**

2011 Report for 2010 Emissions

Niagara CAER Group Chemical Companies

2011 NERM Report

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Introduction

This report is issued by the Niagara CAER Group Chemical Companies as part of their commitment to being open to the public and to operating their businesses according to the principles of **Responsible Care®**, an initiative of CIAC. (**The Chemistry Industries Association of Canada.**) This is the **Eighteenth** year of its publication.

Production levels have improved over 2009 and should continue to improve in 2011. Operating the chemical plants with the absolute minimum impact on the health, safety and environmental well being of the communities in which we operate and live, continues to be our top priority.

The CAER Member companies strive to reduce chemical emissions and reduce chemical waste.

Results are presented as Charts with accompanying explanations. Data is presented at the end of the report in the form of tables. Persons wishing to obtain more information are asked to contact the company directly at the numbers listed in this report, or to send an e-mail with their questions to: pcollee@cogeco.ca.

Summary

In 2010, Chemical Emissions increased over 2009 levels due to increase production levels. The chemical emissions per Kg. of production dropped by approximately 18% from the previous year. Waste generation is variable and shows an increase due to incremental clean out of sludge from storage tanks and product that went to recycle being sent for disposal. Combustion emissions were up slightly due to increase in levels of production. The combustion emission levels per kg of production continue to drop as a result of some more efficient fuel burning equipment installed, however a baseline level of heating is required regardless of production volumes.

Overall the Niagara CAER Chemical Companies have performed exceptionally well in controlling and reducing combustion and chemical emissions and wastes.

NIAGARA CAER

Member Companies

Chemtrade Logistics Inc.

CYTEC Canada Inc.

Durez Canada Company Ltd.

Kemira Chemicals Canada Inc.

Mancuso Chemicals Limited

Oxy Vinyls Canada Co.

Member Companies Contact Names

Company	Contact Name and Number	
Chemtrade Logistics Inc.	Dave Smith	905-356-8763
CYTEC Canada Inc.	Rene Lemay	905-374-5944
	Ken Milo	905-374-5812
Durez Canada Company Ltd.	Robert Hunt	905-346-8615
Kemira Chemicals Canada Inc.	Bruno Montpetit	905-688-6470
	Clifton Brown	905-688-6470
Mancuso Chemicals Ltd.	Bob Patel	905-357-3626
Oxy Vinyls Canada Co.	Don Davidson	905-374-5601
	Ron Morettin	905-374-5669

Chemicals Manufactured and Uses

- **Cytec: Phosphine, Fumigants, Mineral Extractants, Speciality Phosphine Chemicals**
Electronics Industry, Metal Recovery, Mining industry, Fumigation, Biocides
- **Durez: Phenolic Resins and Compounds**
Automotive, Brake pistons, Clutch Facings, Electrical Applications.
- **Chemtrade Logistics: Distributes Sulphur Products, Sulphur Dioxide and Molten Sulphur.**
Pulp and paper, Electronics, mines and cyanide destruction.
- **Oxy Vinyls: PVC Resins**
Construction: Pipe & fittings, House Siding, Window Frames, Floors, Wallpaper, Fencing, roof and pool membranes. Packaging, Medical Tubing, Wire and Cable, Automotive dashes, bumpers and trim.
- **Kemira: Defoamers, Dyes and specialty Chemicals.**
Water treatment and allied processes in pulp and paper production; oil & mining processes, and paint formulation.
- **Mancuso: Phenolic, Furan and Alkyd Resins, Aryl Sulfonic Acids, Binder systems for foundries and Alkyds for Industrial Coatings.**

NIAGARA CAER GROUP 2010 COMPOSITE PROFILE

For 2011 NERM Report		
Number of Employees		323
Payroll (Including Benefits)	\$	31,114,273
Taxes	\$	1,043,533
Utilities	\$	12,570,308
Value of Supplies and Services	\$	17,112,241
Value of Sales	\$	355,978,135
Percent of Products Exported	%	69.17
2010 Production Level,	kg	258,780,830
2011 Production Estimate,	kg	289,347,240
Charity Support (United Way etc.)	\$	40,568

Explanations

Chemical Emissions

Chemical emissions increased by 25% over 2009 levels. This was attributed to higher production volumes. Some chemical emissions were reduced. However there are some emissions that are tied directly to production. The 2010 level was still below the base year by 38%. The trend of lower chemical emissions per 1000kg of production continues to drop as production increases. The chemical emissions dropped by 18% from the previous year and is 22% lower than the base year..

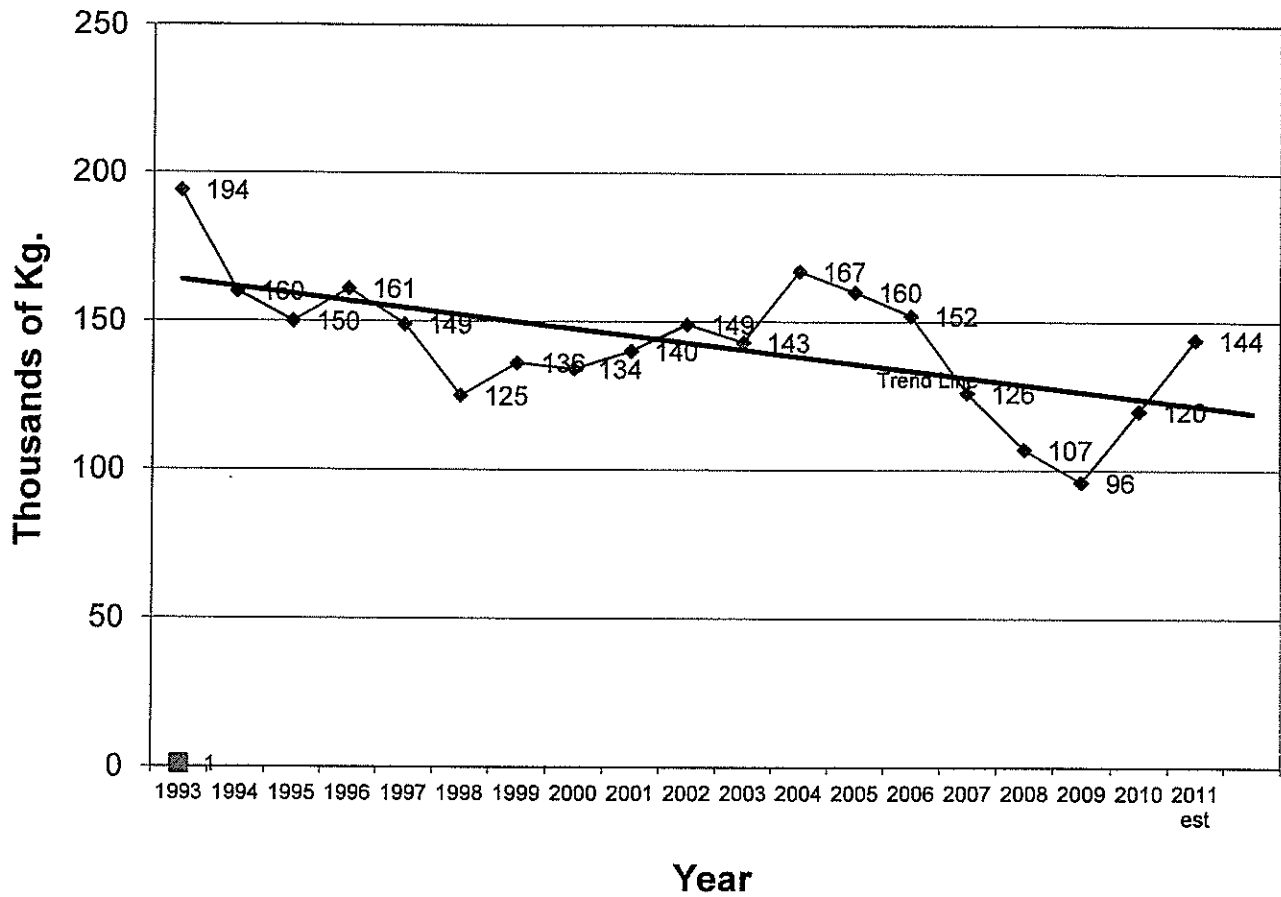
Chemical Wastes

Chemical Wastes are accumulated over time and periodically shipped out for treatment. As a result, depending on the shipping dates, there can be big swings in "apparent" generation of wastes. Such was the case for two plants that had tank cleanouts in 2010. These cleanouts attributed to 100% increase in their waste to be treated. In one case previous waste that was recycled had to be disposed of because the customer for this product is no longer doing this type of process.

Combustion Emissions

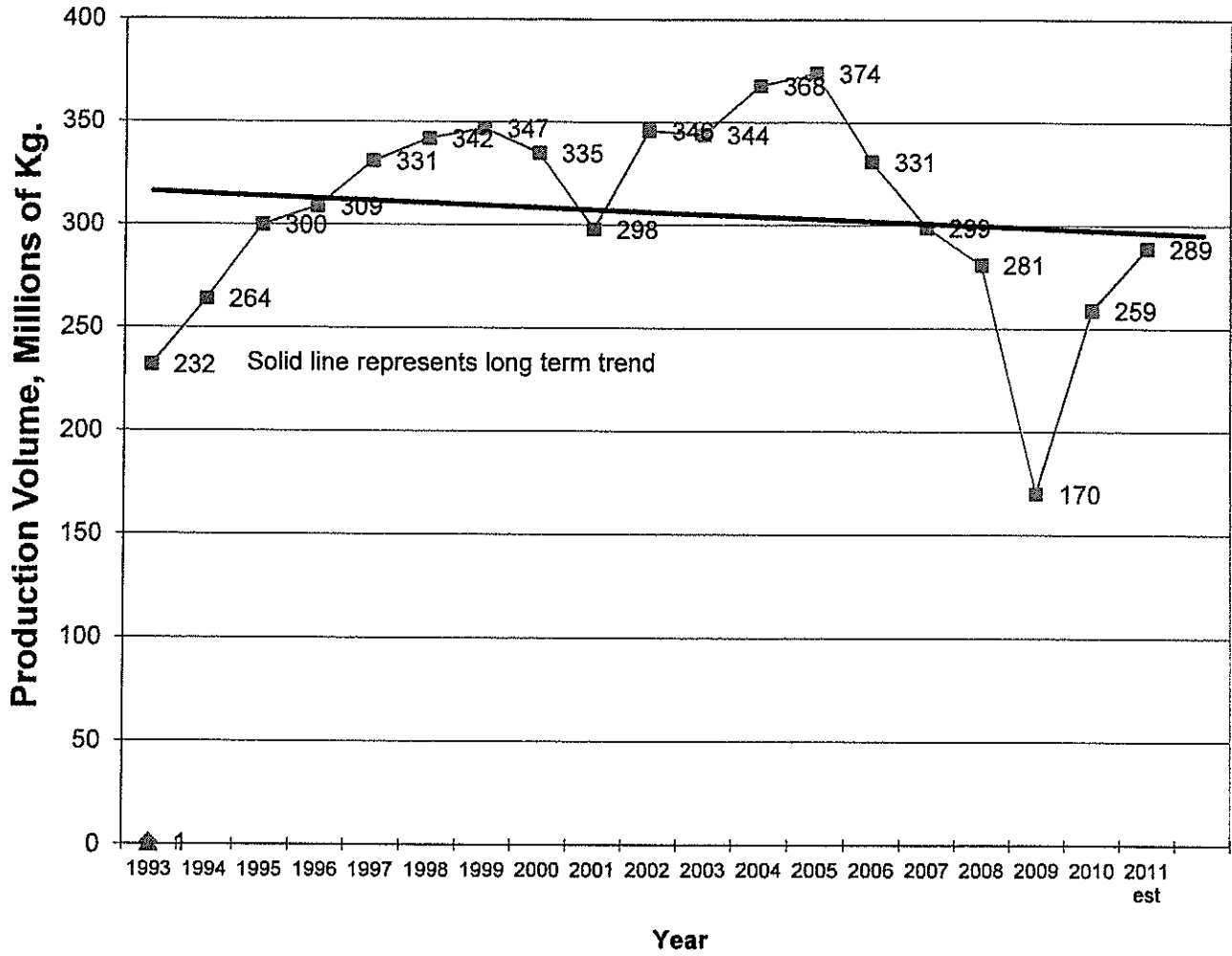
The reduction in Greenhouse Gases has been a real success story at the chemical plants. As a result of the higher production levels in 2010 the combustion emissions per kg were much lower than the previous year. The combustion emissions were higher than the previous year due to higher production levels.

**Chart No. 1
Chemical Emissions**



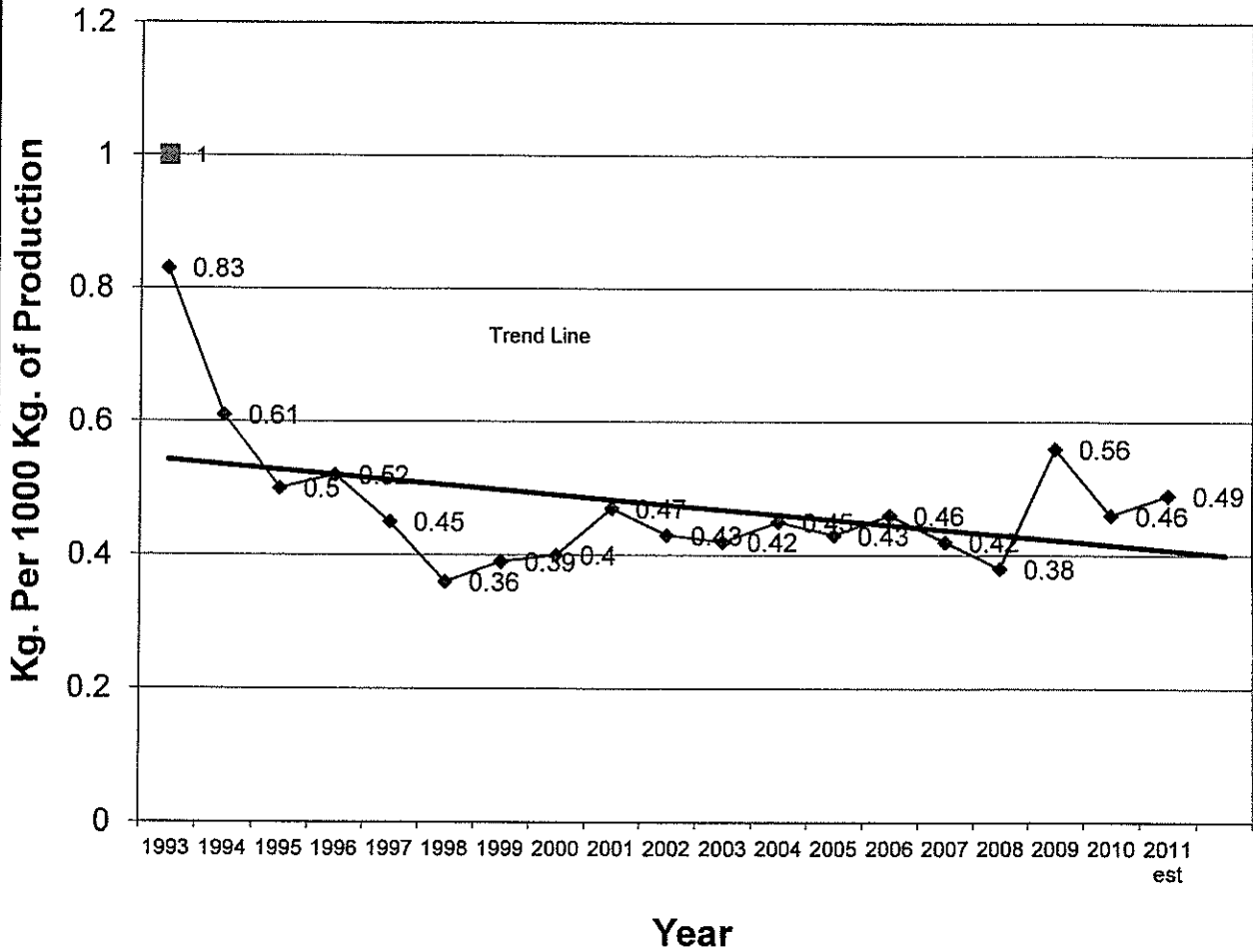
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Chart No.2 Production Volume



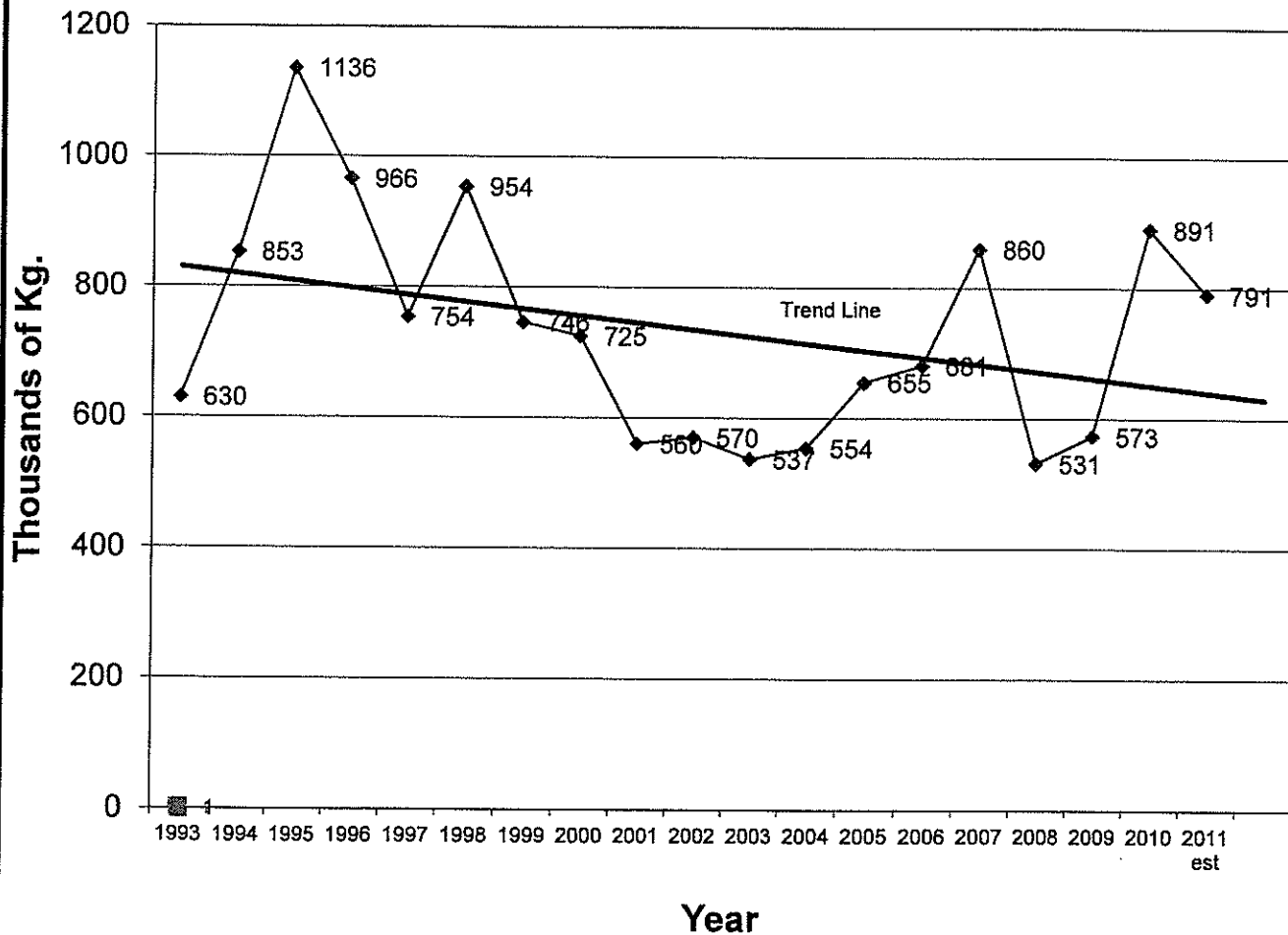
Production levels continue to increase over the past year as sales increase and the economy improves.

Chart No. 3
Chemical Emissions Per 1000 Kg. Of Production



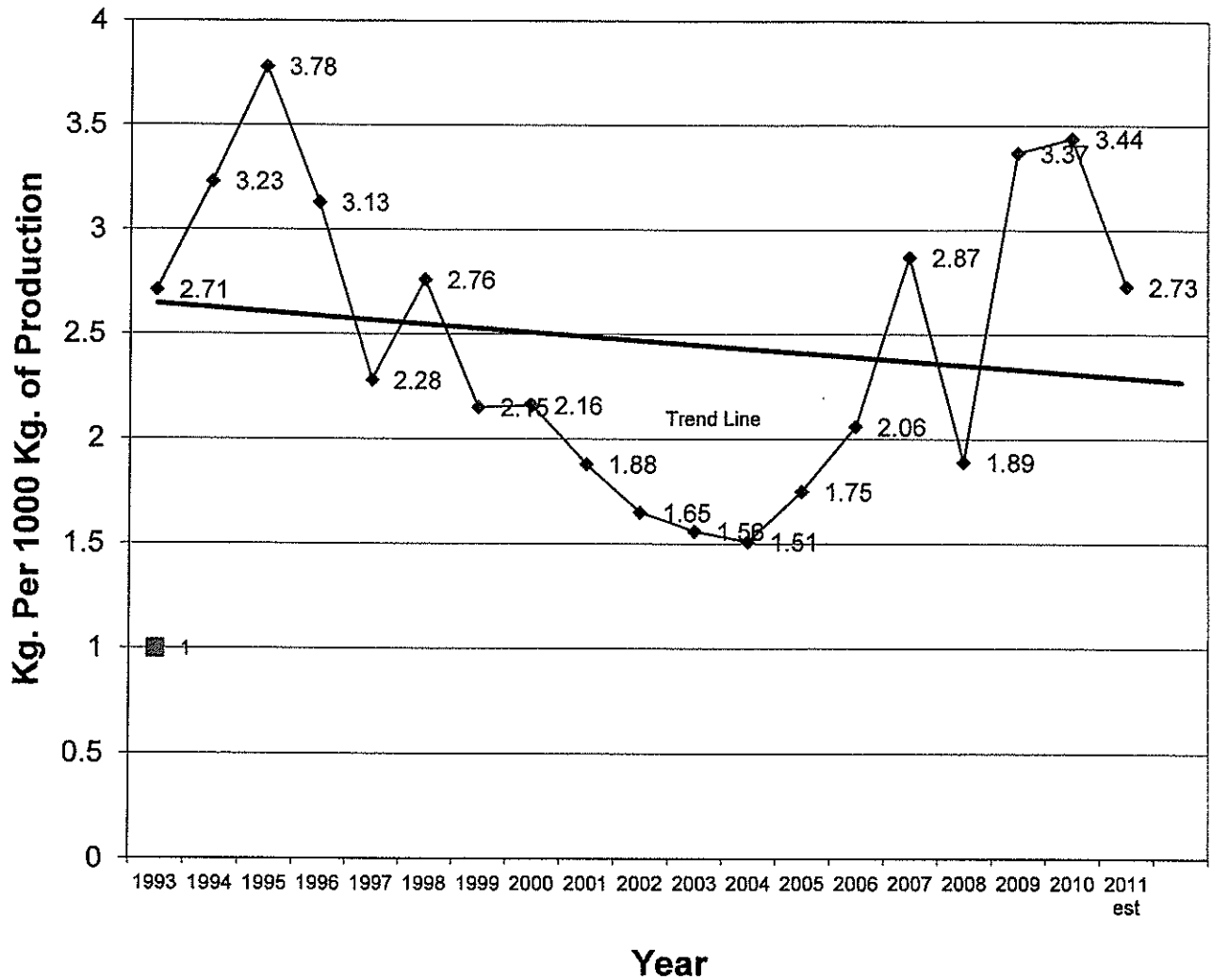
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**Chart No. 4
Chemical Wastes**



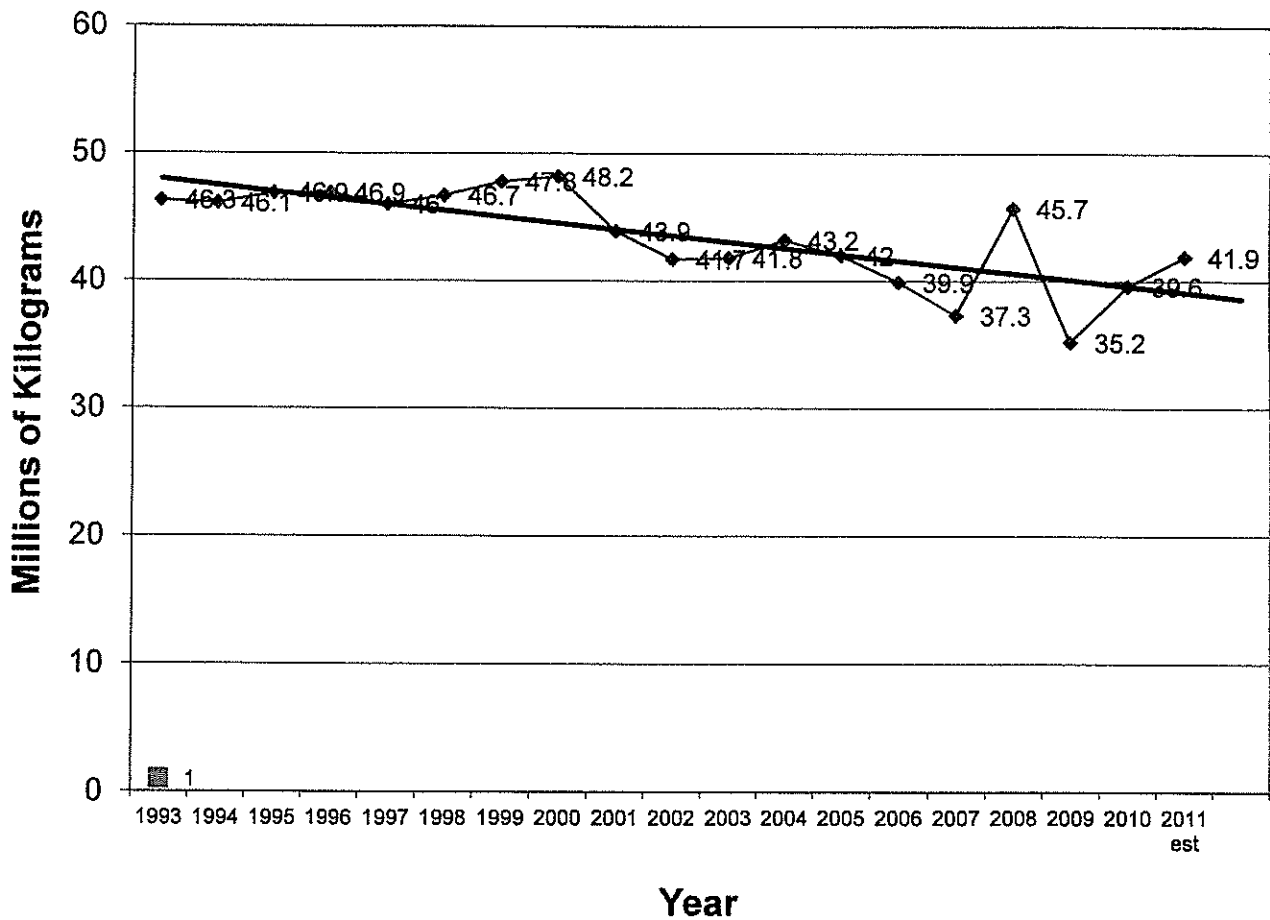
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Chart No. 5
Chemical Wastes Per 1000 Kg. of Production



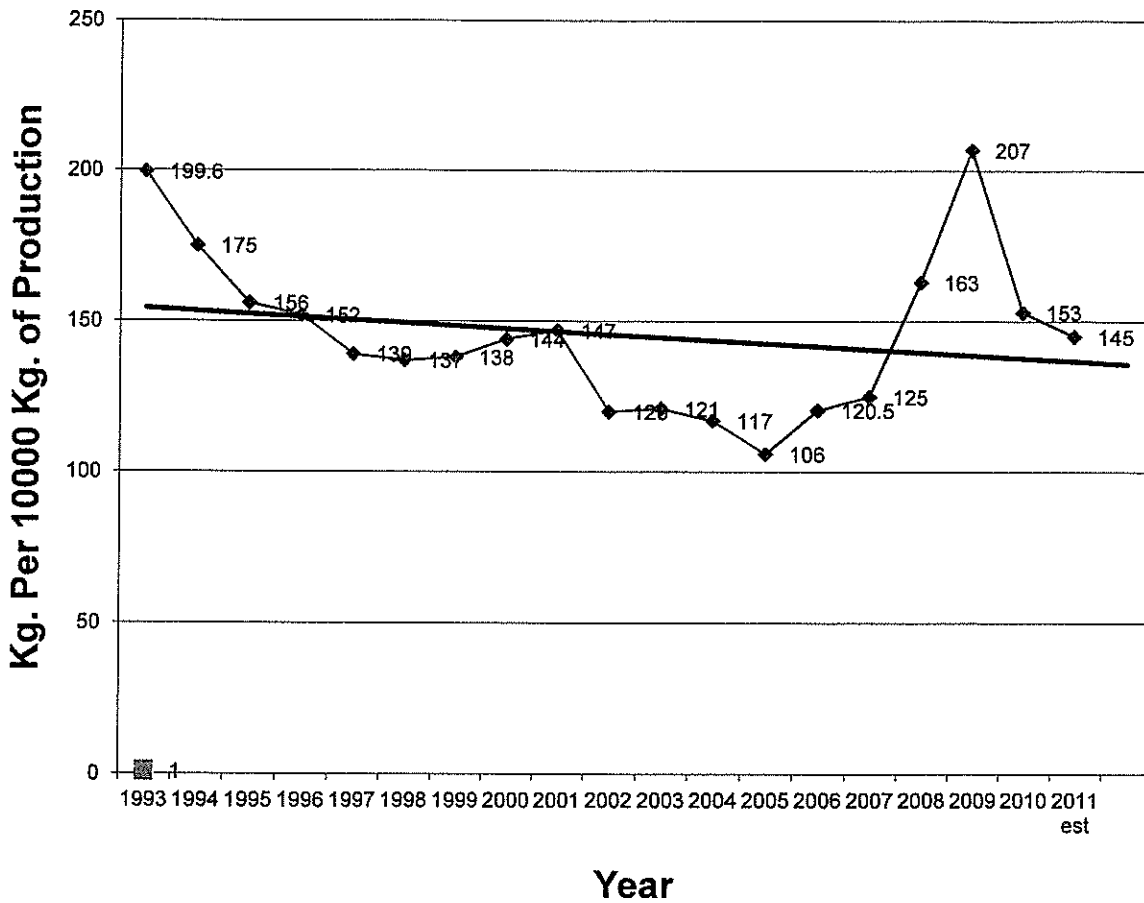
The volume of waste per 1000kg of production is high due to abnormal quantities going to waste as per previous chart explanation.

**Chart No. 6
Combustion Emissions**



Combustion Emissions increased by 12.5% over the previous year. This is due mainly to the increase in production at all plants reporting.

Chart No. 7
Combustion Emissions per 10000 Kg. of Production



As a result of the higher production levels in 2010 the combustion emissions per kg were much lower .

**Chart No. 8
Emissions Plus Wastes**

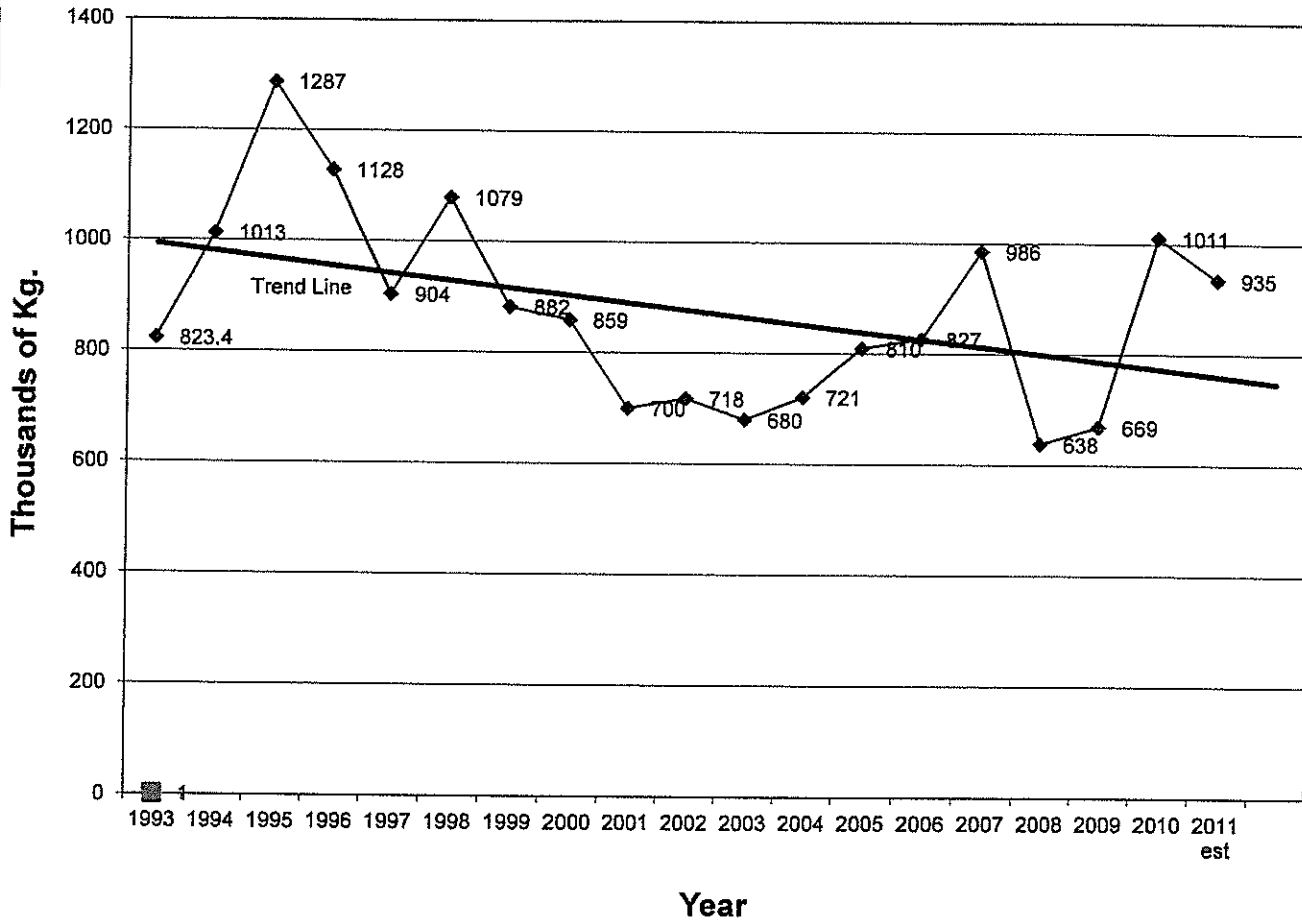
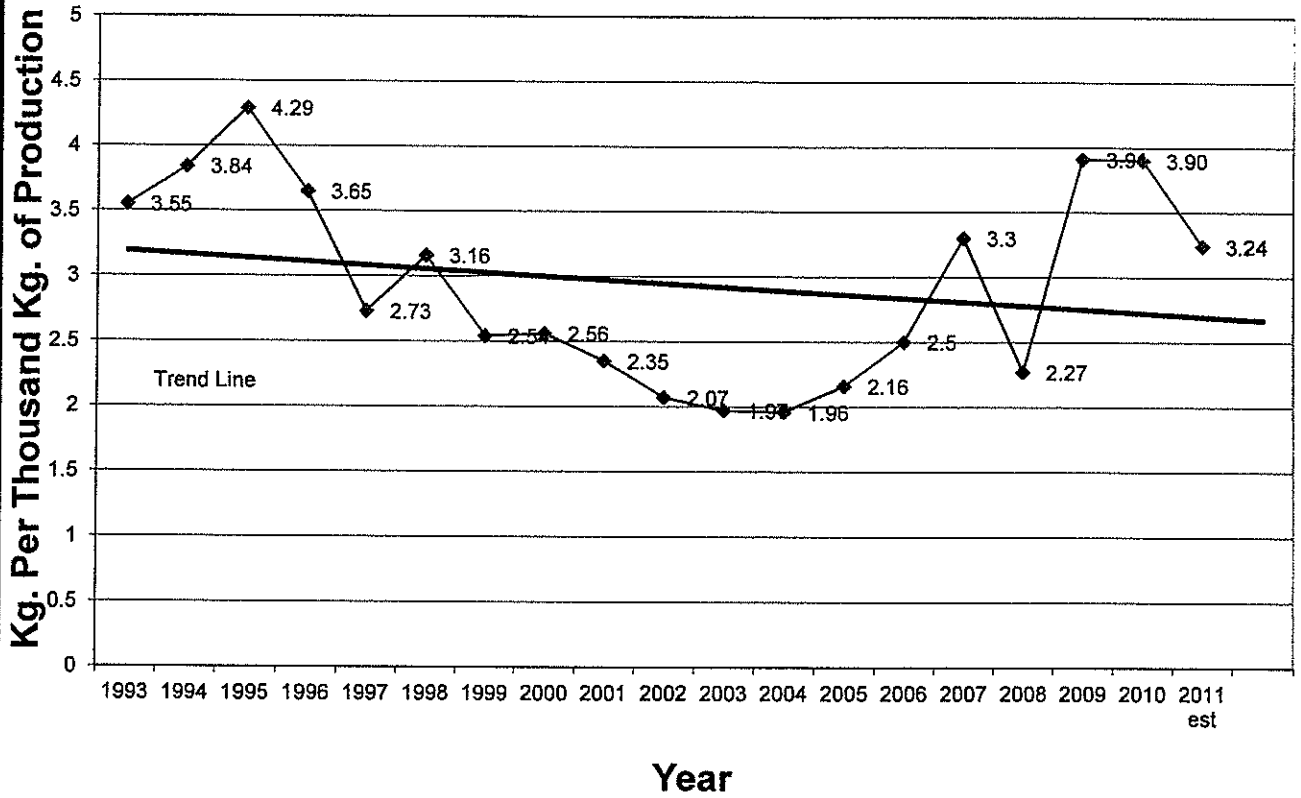


Chart No. 9
Emissions Plus Wastes
Kg. Per Thousand Kg. of Production



Chemical Emissions to Air and Water

Year 2010 Emissions and Comparisons with 2009 results

Table 1

Plant No.	Chemical Name	Amount Released in 2010 Kilograms		Total 2010 kg.	Total 2009 kg.	% Change From 2009	Estimate 2011 kg.
		Waterway	Air				
4	Nitrogenous Material	1208	0	1208	925	+30	1200
1,4,5	Ammonia	1372	24,838	26,210	17,591	+49	34,150
4,5,7,9	Methanol	0	222	222	259	-14	398
4	Iso Octane	0	2,801	2801	2,920	-4	3000
4	Vinyl Chloride	1	328	329	427	-23	400
1,9	Toluene	156	1	157	115	+36	161
5,7	Kerosene Type Solvents	0	1,352	1,352	739	+55	1,510
5	Ethyl Alcohol	53,520	20	53,540	31,762	+68	60,200
1,4	Nitrate Ion	28,255	0	28,255	37,257	-32	37,500
1,7	Isopropanol	0	254	254	170	+48	302
4,5	Phenol	2	3,226	3,228	2,046	+57	3309
1,5	Formaldehyde	0	71	71	45	+63	85
9	Xylene	0	81	81	92	-14	85
4	Oil and Grease	813	0	813	848	-4	800
4	Phosphorus Salts	281	0	281	302	-7	300
4	Aluminum Ion	171	0	171	83	+200	150
7	Acetic acid	0	180	180	188	-4	200
6	Sulphur Dioxide	0	152	152	31	+390	30
	Emissions less than 100 kg./yr.*	0	285	285	310	-8	307
	Total Emissions, kg.	85,779	33,811	119,590	96,110	+24	144,087

Identification of Companies: (1) Cytec (4) Oxy Vinyls (5) Durez (6) Chemtrade Logistics (7) Kemira Chemicals (9) Mancuso Chemicals

Number (2) was Lubrizol (3) was CYRO,(8) was Poly-One now shut down. The numbering system has been maintained to allow comparison with previous years

*includes: zinc; HCFC; cyanide; calcium hydroxide; ferric oxide; carbon black; naphthalene; 1,2,4-trimethyl benzene; furfuryl alcohol; ethyl benzene; gasoline

Chemical Emissions Per 1000 Kg. of Production, 1993 to 2010

Kg. of Emissions Per 1000 Kg. of Production

Table 2

	1993 Base Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 est
Production Volume 1000 tonnes	232	264	300	309	331	342	347	335	298	346	344	368	374	331	299	281	170	259	289
% Change from Base Year*		+ 14	+ 30	+ 33	+43	+47	+ 50	+ 44	+ 29	+49	+48	+58	+61	+43	+29	+21	-27	+12	+12
Chemical Emissions - tonnes.	194	160	150	161	149	125	136	134	140	149	143	167	160	152	126	107	96	120	144
% Change from Base Year*		- 18	- 22	- 17	- 23	- 36	- 30	- 31	- 28	- 24	- 26	- 14	- 18	- 22	- 35	- 45	- 50	- 38	- 26
Chemical Emissions: Kg. per 1000 t of Production	0.83	0.61	0.50	0.52	0.45	0.36	0.39	0.40	0.47	0.43	0.42	0.45	0.43	0.46	0.42	0.38	0.56	0.46	0.49
% Change from Base Year, 1993		- 27	- 40	- 37	- 46	- 57	- 53	- 52	- 43	- 48	- 49	- 45	- 48	- 44	- 50	- 54	- 32	- 44	- 41

Chemical Wastes

Year 2010 Data and Comparisons with 2009 and 2011 Estimates

Table 3

Plant No.	Chemical Name	Amount Transferred in 2010 Kilograms		Total 2010 Kg	Total 2009 Kg	% Change From 2009	Estimate 2011 kg.
		Landfill	Recycled/Treated				
1	Tributyl-Phosphine Sulfide	16,646	0	16,646	25,797	-54	20,000
5	Phenol*	5,436	180,471	185,907	59,610	+310	190,000
1,4,7	Liquid Industrial Waste (Oils, etc.)	0	228,948	228,948	259,262	-13	257,000
4	Vinyl Resins	270,698	0	270,698	131,000	+108	200,000
1	Phosphorus Salts	0	1945	1945	4,577	-235	3000
1,4,6,7	Waste Misc. Haz. Prod. & Rinses	1825	163,893	165,718	84,656	+95	102,000
5	Formaldehyde*	205	12,755	12,960	4,182	+209	15,000
6	Sodium Hydroxide	0	8660	8660	3750	+130	4000
	Chemicals with wastes of 100 Kg. or less per year **						
	Total Chemical Wastes	294,810	596,672	891,482	572,834	+56	791,000

Identification of Companies: (1) Cytec (4) Oxy Vinyls (5) Durez (6) Chemtrade Logistics (7) Kemira Chemicals (9) Mancuso Chemical

* Amounts shown does not include material recycled into a customer's process stream and converted into a finished product.

** Includes: Mercury and Batteries.

Chemical Wastes per 1000 Units of Production, 1993 to 2010

Kg. of Wastes per 1000 Kg. of Production

Table 4

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 Est
Production Volume 1000 tonnes	232	264	300.5	308.6	331.3	342	347	335	298.4	346.3	344.3	368	374.3	330.9	299	281	170	259	289
% Change from Base Year, 1993		+14	+30	+33	+48	+47	+49	+44	+29	+49	+48	+596	+61	+43	+29	+21	-27	-4	+12
Chemical Wastes tonnes	630	853	1,136	966	754	954	746	725	560	570	537	514	655	681	860	531	573	891	791
% Change from Base Year, 1993		+35	+80	+53	+20	+51	+18	+15	-11	-9	-15	-12	+4	+8	+36	-16	-10	+41	+25
Chemical Wastes: Kg. per tonnes of Production	2.71	3.23	3.78	3.13	2.28	2.76	2.15	2.16	1.88	1.65	1.56	1.51	1.75	2.06	2.87	1.89	3.37	3.44	2.73
% Change from Base Year, 1993		+19	+40	+16	-16	+2	-21	-20	-31	-39	-42	-44	-35	-24	+6	-30	+24	-41	+1

**Combustion Emissions
 Burning Fuel For Steam Generation And Drying
 Emissions for 2010 and 2009 and Estimates for 2011
 Table 5**

Combustion Product Component	Amount Released		
	2010	2009	2011 Estimate
Carbon Dioxide 1000 tonnes	39.6	35.185	41.8
Nitrogen Dioxide tonnes	34.23	28.28	34.53
Carbon Monoxide tonnes	23.86	21.16	25.40
Sulfur Oxides tonnes	0.748	0.636	0.944
Methane tonnes	1.13	1.59	1.70
Volatile Organic Carbon tonnes	7.11	5.82	7.12
Totals 1000 tonnes	39.698	35.24	41.869

Combustion Emissions Per 1000 Kilograms of Production, 1993 to 2010

Table 6

	1993 Base Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 est
Production Volumes Millions of Kg.	232	264	300.5	308.7	331.2	342	347	335	298.4	346.3	344.3	368	374.3	330.9	299	281	170	258	289
% Change from Base Year 1993		+13.8	+29.5	+ 33	+42.8	+47.4	+49.6	+44.4	+28.6	+49.3	+48.4	+56.6	+61.3	+42.6	+29	+21	-27	+11	+24
Combustion Emissions Millions of Kg.	56.3	57.4	60.4	60.4	59	58.5	60.9	62.3	55.8	53.1	53.1	54.8	42	39.9	37.3	45.7	35.2	39.6	41.8
% Change from Base Year 1993		+ 1.9	+ 7.3	+ 7.3	+ 4.8	+ 3.9	+ 8.2	+10.7	- 1.0	-5.7	-5.7	-2.7	-25.4	-29.1	-34	-19	-37	-30	-34
Combustion Emissions Kg. Per 1000 Kg. Of Production	242.6	217.3	201	195.7	178.1	172.2	175.5	186	186.4	153.3	154.1	148.8	106	120.5	124.5	162.6	207.1	153.5	144.6
% Change from Base Year 1993		- 10.4	- 17.1	-19.3	-26.6	- 29	-27.7	- 23.3	-23.0	-36.8	-36.5	-38.7	-56.3	-50.3	-48.7	-33	-14.6	-36.7	-40.0