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National Priority Chemicals Trends Report (2005-2007)

Section 6
Priority Chemical Analyses for Specific Industry Sectors

Program Implementation and Information Division
Office of Resource Conservation and Recovery
U.S. Environmental Protection Agency

Contact Information:

Bill Kline, Senior Data Analyst
Information Collection & Analysis Branch
(540) 341-3631
kline.bill@epa.gov

Tammie Owen, Data Analyst
Information Collection & Analysis Branch
(703) 308-4044
owen.tammie@epa.gov

Dwane Young, Chief
Information Collection & Analysis Branch
(703) 347-8578
Young.dwane@epa.gov

SECTION 6
PRIORITY CHEMICAL ANALYSES FOR SPECIFIC INDUSTRY SECTORS

Introduction

The primary focus of this Report is to support EPA's NPEP program by identifying the non-recycled quantities of PCs contained in wastes that are managed by disposal, energy recovery, or treatment and thus potentially might offer waste minimization opportunities. A discussion of recycled quantities of PCs is presented in Appendix C.

In this section, we look at the generation and management of PCs by facilities within the five NAICS codes, or industries, in which facilities reported the largest quantities of PCs for 2007 (Exhibit 6.1). Facilities in these five industries accounted for approximately 56 percent of the total national quantity of PCs generated. We present generation and management trends at the national, EPA Region, state, and county levels for each of these industries.

Exhibit 6.1. Industries with Largest Quantity of Priority Chemicals (2007)

NAICS Code	NAICS Code Description	Total PC Quantity	Percent of National Total PC Quantity
325181	Alkalies and Chlorine Manufacturing	12,318,274	14.5%
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	12,113,121	14.3%
331111	Iron and Steel Mills	9,917,169	11.7%
325199	All Other Basic Organic Chemical Manufacturing	7,780,463	9.2%
325211	Plastics Material and Resin Manufacturing	5,614,944	6.6%
	Total	**47,743,971**	**56.3%**

We also present data for these PCs that were derived from the BR. A BR must be submitted by LQGs[13] and TSDFs every two years. We developed a methodology to identify the hazardous waste streams reported to the BR that are likely to contain PCs and estimate the quantity of PCs in the waste streams. We derived these data by applying a methodology to estimate the quantity of each PC contained in BR waste streams. The estimates of PCs contained in hazardous wastes supplement the data reported to TRI, providing a broader perspective regarding this industry's generation and management of wastes that contain PCs. We estimate quantities of PCs that are contained in both generated and managed hazardous waste streams. The focus of this methodology is primary generation activities that includes waste streams generated from a production process, service activity, or routine/periodic cleanup, where potential opportunities for direct waste minimization (e.g., source reduction, recycling) are the greatest.

For some PCs and industries, the total estimated quantity of a PC may differ when determined using the chemical-specific versus the industry-specific versions of the PC BR Measurement Methodology. For both versions, the PC concentration assumptions were derived based on data obtained from BDAT and listing background documents. For each PC, EPA used an average concentration of all available concentration data, for wastewaters and non-wastewaters, in assigning a concentration to each waste code-form code combination. However, in developing the concentration assumptions for a specific industry, EPA excluded data for waste streams that are not expected to be generated by the subject industry. As such, estimated quantities of PCs contained in hazardous waste streams for the specific industries included in this section may differ from the quantities shown in Section 3 of this Report.

For one or more reasons, estimated quantities of PCs in managed waste associated with primary generation activities may differ from the estimated quantities of PCs in generated wastes associated with primary generation activities. Please see Section 2.2 of the PC BR Measurement Methodology document for a discussion of potential reasons for these differences. For additional information, please also see http://www.epa.gov/epawaste/hazard/wastemin/trend.htm.

As discussed in Section 1, we caution readers against making casual one-to-one comparisons between the TRI and BR data. The differences between these two reporting systems can cause significant variation in the number of reporting facilities and quantities of chemicals reported.

[13] An LQG is a facility that generates 1,000 kilograms (2,200 pounds) or more of hazardous waste or 1 kg or more of acute hazardous waste in a calendar month.

Alkalies and Chlorine Manufacturing (NAICS Code 325181)

Description of NAICS Code

Establishments primarily engaged in manufacturing chlorine, sodium hydroxide (i.e., caustic soda), and other alkalies, often using an electrolysis process. (Source: U.S. Census Bureau)

How Much and Which of the Priority Chemicals Did Facilities in This Industry Generate?

For 2007, 17 facilities in this industry reported generating approximately 12.3 million pounds of PCs. Compared to the total quantities of PCs reported for 2005 and 2006, the quantity decreased by approximately 720,000 pounds and increased by approximately 906,000 pounds, respectively (Exhibit 6.2). Two facilities reported approximately 95 percent of the total quantity of PCs for this industry.

Exhibit 6.2. National Generation of Priority Chemicals by Facilities in NAICS 325181 (2005–2007)

TRI Reporting Year	2005	2006	2007
Total Quantity of Priority Chemicals (pounds)	13,038,368	11,412,703	12,318,274
Number of TRI Facilities in NAICS 325181 Reporting Priority Chemicals	17	18	17

For 2007, facilities in NAICS code 325181 accounted for approximately 14.5 percent of the national total quantity of PCs generated and a significant portion of the total quantity for numerous PCs (Exhibit 6.3), including approximately:

- 91 percent of 1,2,4-trichlorobenzene
- 71 percent of hexachloro-1,3-butadiene
- 49 percent of pentachlorobenzene
- 42 percent of mercury and mercury compounds
- 39 percent of hexachloroethane
- 18 percent of hexachlorobenzene
- 15 percent of polychlorinated biphenyls (PCBs)
- 14 percent of dioxin and dioxin-like compounds

Exhibit 6.3. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 325181 Facilities (2005–2007) and Comparison to National Quantities (2007)

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for This Industry (2007)	Percent of National Total Quantity of This PC (2007)
	2005	2006	2007		
Hexachloro-1,3-butadiene	7,417,120	7,014,209	7,340,126	59.6%	71.2%
Hexachloroethane	3,266,864	1,611,218	2,147,043	17.4%	39.1%
1,2,4-Trichlorobenzene	1,199,791	1,307,675	1,225,921	10.0%	91.3%
Hexachlorobenzene	794,071	644,768	1,169,311	9.5%	17.9%
Pentachlorobenzene	305,962	328,698	294,537	2.4%	49.2%
Naphthalene	10,253	446,124	93,867	0.8%	0.8%
Mercury and mercury compounds	4,491	15,997	30,512	0.2%	42.2%
Polychlorinated biphenyls (PCBs)	22,914	15,632	13,710	0.1%	15.2%
Polycyclic aromatic compounds (PACs)	0	1,644	1,418	<0.1%	<0.1%
Lead and lead compounds	2,510	1,346	1,331	<0.1%	<0.1%
Phenanthrene	0	0	436	<0.1%	<0.1%
Dioxin and dioxin-like compounds*	81	80	61	<0.1%	13.5%
Anthracene	0	25,089	0	0%	0%
Cadmium and cadmium compounds	0	36	0	0%	0%
Pentachlorophenol	14,309	186	0	0%	0%
Total	**13,038,368**	**11,412,703**	**12,318,274**	**100%**	**14.5%**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Specific details regarding the quantities of several of the PCs reported by facilities in NAICS code 325181 include:

Hexachloro-1,3-butadiene: From 2005 to 2007, the total quantity of hexachloro-1,3-butadiene was relatively consistent. Two Louisiana facilities, located in Ascension and Calcasieu counties (EPA Region 6), accounted for nearly 100 percent of this PC.

Hexachloroethane: For 2006, the total quantity of hexachloroethane decreased by approximately 1.7 million pounds and then, for 2007, increased by approximately 536,000 pounds. Of the three facilities that reported hexachloroethane for 2007, a facility in Ascension County, Louisiana (EPA Region 6) reported approximately 62 percent of the total quantity. A facility located in Brazoria County, Texas (EPA Region 6) reported a decrease of approximately 1.3 million pounds for 2006.

Hexachlorobenzene: Three of the five facilities that reported hexachlorethane accounted for 99.8 percent of the total quantity. For 2007, the quantity increased by approximately 525,000 pounds. Two facilities primarily accounted for this increase: 1) a facility in Brazoria County, Texas (EPA Region 6) reported an increase of approximately 351,000 pounds and 2) a facility in Ascension County, Louisiana reported an increase of approximately 233,000 pounds.

Naphthalene: For 2006, the quantity increased by approximately 436,000 pounds primarily because a facility in Brazoria County, Texas (EPA Region 6) that had not reported naphthalene for 2005, reported approximately 341,000 pounds. This facility also did not report naphthalene for 2007.

Where Did Facilities in This Industry Generate Priority Chemicals?

Since 2005, facilities in NAICS code 325181 in four Louisiana counties (EPA Region 6): 1) Ascension County, 2) Calcasieu County, 3) Iberville County, and 4) St. James County accounted for nearly all of the PCs in this industry, including 95 percent for 2007 (Exhibit 6.4).

Exhibit 6.4. Quantity of Priority Chemicals, by County, State, EPA Region (2005−2007)

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 325181 (2007)
			2005	2006	2007	
6	LA	Ascension	5,759,065	4,726,567	5,888,246	47.8%
6	LA	Calcasieu	5,604,241	5,979,942	5,779,400	46.9%
6	TX	Brazoria	1,643,184	666,786	594,750	4.8%
6	LA	Iberville	621	9,252	23,596	0.2%
3	WV	Marshall	3,871	10,089	12,901	0.1%
6	LA	St James	10,253	14,059	12,884	0.1%
3	DE	New Castle	904	3,710	3,823	<0.1%
2	NY	Niagara	182	691	1,734	<0.1%
4	TN	Bradley	260	484	406	<0.1%
5	OH	Ashtabula	434	306	202	<0.1%
4	AL	Colbert	389	299	144	<0.1%
5	WI	Wood	421	162	98	<0.1%
4	GA	Richmond	136	149	68	<0.1%
7	KS	Sedgwick	14,322	206	21	<0.1%
6	LA	St Charles	0	0	0	<0.1%
6	TX	Harris	84	0	0	<0.1%
4	AL	Mobile	0	0	0	<0.1%
		Total	**13,038,368**	**11,412,703**	**12,318,274**	**100.0%**

How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.5 shows how facilities in this industry managed PCs in 2007.

Exhibit 6.5. Management of Priority Chemicals by NAICS 325181 Facilities (2007)

Priority Chemical	Total PC Quantity Reported	Quantity (pounds) of Priority Chemical					
		Disposal		Energy Recovery		Treatment	
		On-site	Off-site	On-site	Off-site	On-site	Off-site
Hexachloro-1,3-butadiene	7,340,126	2	10	0	19	7,315,015	25,080
Hexachloroethane	2,147,043	74	0	279,739	0	1,851,587	15,644
1,2,4-Trichlorobenzene	1,225,921	0	3	17,688	376	1,199,696	8,158
Hexachlorobenzene	1,169,311	225	0	230,168	2	933,655	5,261
Pentachlorobenzene	294,537	0	0	0	0	293,866	671
Naphthalene	93,867	0	0	37,991	0	55,829	47
Mercury and mercury compounds	30,512	406	30,106	0	0	0	0
Polychlorinated biphenyls (PCBs)	13,710	0	0	0	0	11,727	1,984
Polycyclic aromatic compounds (PACs)	1,418	0	0	658	0	759	1
Lead and lead compounds	1,331	0	1,331	0	0	0	0
Phenanthrene	436	436	0	0	0	0	0
Dioxin and dioxin-like compounds*	61	5	0	0	0	48	7
Total	**12,318,274**	**1,149**	**31,451**	**566,244**	**397**	**11,662,182**	**56,852**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Disposal: Mercury and mercury compounds accounted for most of the approximately 33,000 pounds or 0.3 percent of the total quantity of this PC disposed of, primarily off site.

Energy Recovery: Facilities used energy recovery, mostly on site, to manage approximately 5 percent of this industry's PCs, including significant portions of hexachloroethane and hexachorobenzene.

Treatment: Facilities treated, primarily on site, approximately 95 percent of the PCs.

In 2007, facilities in this industry also recycled approximately 4 million pounds of PCs. See Exhibit C.3 in Appendix C for additional information about the recycling of PCs in this industry. Facilities also released approximately 4,700 pounds of PCs as air emissions and surface water discharges in 2007. See Appendix D for additional information about releases of PCs for this industry.

Data Derived From Hazardous Waste Biennial Reports for NAICS 325181

In this section, we present data about PCs contained in hazardous wastes, derived from information submitted by NAICS code 325181 facilities in BRs under RCRA. Based on applying our methodology to the 2007 BR data, we estimate that 19 facilities in NAICS code 325181 reported hazardous wastes containing approximately 1.4 million pounds of PCs. Mercury accounted for approximately 49 percent of the total estimated quantity of PCs contained in the hazardous waste streams for this industry (Exhibit 6.6).

Exhibit 6.6. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 325181 (2007)

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Wastewaters	Non-Wastewaters	Total Quantity	
Mercury	15	383,363	305,933	689,296	48.5%
Hexachlorobutadiene	8	<1	330,245	330,245	23.3%
Hexachloroethane	6	<1	189,267	189,267	13.3%
Hexachlorobenzene	7	<1	171,598	171,598	12.1%
Pentachlorobenzene	4	0	22,236	22,236	1.6%
Naphthalene	4	0	8,097	8,097	0.6%
1,2,4-Trichlorobenzene	3	0	6,391	6,391	0.5%
1,2,4,5-Tetrachlorobenzene	4	0	2,890	2,890	0.2%
Phenanthrene	4	0	45	45	<0.1%
Lead	9	12	2	14	<0.1%
Cadmium	4	0	4	4	<0.1%
2,4,5-Trichlorophenol	1	0	<1	<1	<0.1%
Dibenzofuran	1	0	<1	<1	<0.1%
Dioxins/Furans	1	0	<1	<1	<0.1%
Pentachloronitrobenzene (Quintozene)	1	0	<1	<1	<0.1%
Pentachlorophenol	1	0	<1	<1	<0.1%
Polychlorinated biphenyls (PCBs)	1	0	<1	<1	<0.1%
	Total	**383,375**	**1,036,708**	**1,420,083**	**100.0%**

In 2007, facilities in NAICS code 325181 generated hazardous waste containing PCs in 18 counties within 13 states. A facility in Ascension County, Louisiana (EPA Region 6) generated an estimated 46 percent of the PCs contained in hazardous wastes (Exhibit 6.7).

Exhibit 6.7. States and Counties in Which Facilities in NAICS Code 325181 Generated 95 Percent of Priority Chemicals Contained in Primary Generation Hazardous Waste (2007)

EPA Region	State	County	Estimated Quantity of PCs Contained in Hazardous Wastes (pounds)	Percent of Total Quantity of PCs Contained in Hazardous Wastes
6	LA	Ascension	647,654	45.6%
4	TN	Bradley	209,172	14.7%
4	AL	Colbert	162,972	11.5%
6	LA	Calcasieu	148,638	10.5%
5	WI	Wood	80,262	5.7%
3	DE	New Castle	64,951	4.6%
6	LA	Iberville	33,696	2.4%
		Total	**1,347,345**	**94.9%**

Exhibit 6.8 shows how NAICS code 325181 facilities reported managing hazardous wastes that contain PCs. For example, facilities incinerated hazardous wastes containing an estimated 729,000 pounds or 51 percent of PCs. See Appendix E for a full list of the BR management codes and their descriptions.

Exhibit 6.8. Methods Used by NAICS Code 325181 Facilities to Manage Hazardous Wastes Containing Priority Chemicals (2007)

Management Method Group	Management Method Code Description	Quantity of PCs Managed (2007)	Percent of Total Estimated Quantity of PCs
Destruction or Treatment Prior to Disposal at Another Site	Incineration - thermal destruction other than use as a fuel	729,184	51.3%
	Other chemical precipitation with or without pre-treatment	236,537	16.6%
	Other treatment	147,760	10.4%
	Macro-encapsulation prior to disposal at another site	32,648	2.3%
	Stabilization or chemical fixation prior to disposal at another site	20,830	1.5%
	Phase separation	3	<0.1%
	Chemical oxidation	<1	<0.1%
	Destruction or Treatment Prior to Disposal at Another Site Total	**1,166,962**	**82.0%**
Reclamation and Recovery	Metals recovery including retorting, smelting, chemical, etc.	111,727	7.9%
	Other recovery or reclamation for reuse including acid regeneration, organics recovery, etc.	15,000	1.1%
	Fuel blending prior to energy recovery at another site	5,549	0.4%
	Reclamation and Recovery Total	**132,276**	**9.3%**
Disposal	Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)	118,940	8.4%
	Disposal Total	**118,940**	**8.4%**
Transfer Off Site	Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending, or disposal at this site	4,600	0.3%
	Transfer Off Site Total	**4,600**	**0.3%**
	Grand Total	**1,422,778**	**100.0%**

Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum) (NAICS Code 331492)

Description of NAICS Code

Establishments primarily engaged in 1) alloying purchased nonferrous metals and/or 2) recovering nonferrous metals from scrap. Establishments in this industry make primary forms (e.g., bar, billet, bloom, cake, ingot, slab, slug, wire) using smelting and refining processes. (Source: U.S. Census Bureau)

How Much and Which of the Priority Chemicals Did Facilities in This Industry Generate?

For 2007, 32 facilities in this industry reported approximately 12.1 million pounds of PCs. Compared to the total quantities of PCs reported for 2005 and 2006, the quantity increased by approximately 1.1 million pounds and increased by approximately 702,000 pounds, respectively (Exhibit 6.9). Five facilities accounted for approximately 71 percent of the total quantity of PCs for this industry, while twelve facilities accounted for approximately 97 percent of the PCs generated in this industry.

Exhibit 6.9. National Generation of Priority Chemicals by Facilities in NAICS 331492 (2005–2007)

TRI Reporting Year	2005	2006	2007
Total Quantity of Priority Chemicals (pounds)	11,027,809	11,410,674	12,113,121
Number of TRI Facilities in NAICS 331492 Reporting Priority Chemicals	33	30	32

For 2006, facilities in NAICS code 331492 reported 14.3 percent of the national total quantity of PCs generated and a significant portion of two PCs: approximately 34 percent of lead and lead compounds and 35 percent of cadmium and cadmium compounds (Exhibit 6.10).

Exhibit 6.10. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 331492 Facilities (2005–2007) and Comparison to National Quantities (2007)

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for this Industry (2007)	Percent of National Total Quantity of This PC (2007)
	2005	2006	2007		
Lead and lead compounds	10,662,347	11,065,070	11,824,698	97.6%	34.3%
Cadmium and cadmium compounds	364,161	344,408	287,378	2.4%	35.2%
Mercury and mercury compounds	1,301	1,197	1,045	<0.1%	1.4%
Dioxin and dioxin-like compounds*	<1	<1	<1	<0.1%	<0.1%
Total	**11,027,808**	**11,410,674**	**12,113,121**	**100.0%**	**14.3%**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Specific details regarding two of the PCs generated by facilities in NAICS code 331492 include:

Lead and lead compounds

Since 2005, the quantity of this PC increased by approximately 403,000 pounds in 2006 and by 760,000 pounds in 2007. In addition to increased production at numerous facilities, other reasons for these increases include:

- A facility in Beaver County, Pennsylvania (EPA Region 3) that extracts zinc from steel mill dust melted into slag noted that the percentage of lead in the slag varies based on the waste material generated by other companies.
- A facility in Iron County, Missouri uses scrap lead (80 percent from batteries, picture tubes, etc.) combined with coke, limestone, and silica in a blast furnace from which slag (containing the lead) was generated. The quantity of lead reported varies depending on the quantity of slag generated and the amount of lead in the scrap lead.
- A facility in Los Angeles County, California noted their increase of approximately 240,000 pounds in 2006 was due to a furnace re-build from which the contaminated waste refractory materials were sent to a hazardous waste landfill.
- A facility in Harris County, Texas reported an increase of approximately 163,000 pounds for 2007.

Cadmium and cadmium compounds

- A facility in Washington County, Oklahoma reported a decrease of approximately 58,600 pounds for 2007. This facility extracts zinc and lead from electric arc furnace dusts. The cadmium in the waste (about 30 percent by weight) was sent to a land disposal facility; the facility noted that the quantity of cadmium correlates to the variability of the electric arc furnace dusts processed.

Where Did Facilities in This Industry Generate Priority Chemicals?

For 2007, NAICS code 331492 facilities in eight counties reported approximately 90 percent of the total quantity of PCs generated in this industry (Exhibit 6.11).

Exhibit 6.11. Quantity of Priority Chemicals, by County, State, EPA Region (2005−2007)

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 331492 (2007)
			2005	2006	2007	
4	AL	Pike	2,095,679	2,260,835	2,340,327	19.3%
5	IN	Marion	2,058,059	1,955,323	2,026,090	16.7%
9	CA	Los Angeles	1,894,894	2,000,070	1,994,199	16.5%
7	MO	Iron	1,691,895	1,499,007	1,776,655	14.7%
3	PA	Berks	1,018,089	1,071,347	1,279,305	10.6%
5	IN	Delaware	640,176	525,238	582,752	4.8%
3	PA	Beaver	357,357	623,737	502,586	4.1%
6	LA	East Baton Rouge	217,234	371,933	406,000	3.4%
		Total	**9,973,384**	**10,307,490**	**10,907,913**	**90.1%**

How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.12 shows how facilities in this industry managed PCs in 2007.

Exhibit 6.12. Management of Priority Chemicals by NAICS 331492 Facilities (2007)

Priority Chemical	Total PC Quantity Reported	Quantity (pounds) of Priority Chemicals					
		Disposal		Energy Recovery		Treatment	
		On-site	Off-site	On-site	Off-site	On-site	Off-site
Lead and lead compounds	11,824,698	3,051,780	8,772,918	0	0	0	0
Cadmium and cadmium compounds	287,378	42,308	245,070	0	0	0	0
Mercury and mercury compounds	1,045	0	1,045	0	0	0	0
Dioxin and dioxin-like compounds*	<1	<1	<1	0	0	0	0
Total	**12,113,121**	**3,094,088**	**9,019,033**	**0**	**0**	**0**	**0**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Disposal: Facilities in this industry disposed of 100 percent of the non-recycled quantities of lead, mercury, cadmium, dioxin and their compounds.

Energy Recovery: None reported.

Treatment: None reported.

In 2007, facilities in this industry also recycled approximately 134 million pounds of PCs. See Exhibit C.3 in Appendix C for additional information about the recycling of PCs in this industry. Facilities also released approximately 125,000 pounds of PCs as air emissions and surface water discharges in 2007. See Appendix D for additional information about releases of PCs for this industry.

Data Derived From Hazardous Waste Biennial Reports for NAICS 331492

In this section, we present data about PCs contained in hazardous wastes, derived from information submitted by NAICS code 331492 facilities in BRs under RCRA. Based on applying our methodology to the 2007 BR data, we estimate that 33 facilities in NAICS code 331492 reported hazardous wastes containing approximately 318,000 pounds of PCs. Lead accounted for approximately 93 percent of the total estimated quantity of PCs contained in the hazardous waste streams for this industry (Exhibit 6.13).

Exhibit 6.13. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 331492 (2007)

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Wastewaters	Non-Wastewaters	Total Quantity	
Lead	26	15,475	280,857	296,332	93.1%
Cadmium	24	29	19,787	19,816	6.2%
Mercury	6	0	2,152	2,152	0.7%
2,4,5-Trichlorophenol	1	0	<1	<1	<0.1%
Total		**15,504**	**302,796**	**318,300**	**100.0%**

* Total number of facilities is not additive because wastes from a facility may contain more than one PC.

In 2007, facilities in NAICS code 331492 generated hazardous waste containing PCs in 28 counties within 18 states and territories. Facilities in Sumner County, Tennessee (EPA Region 4) generated 83 percent of the PCs contained in hazardous wastes (Exhibit 6.14).

Exhibit 6.14. States and Counties in Which Facilities in NAICS Code 331492 Generated 99 Percent of Priority Chemicals Contained in Primary Generation Hazardous Waste (2007)

EPA Region	State	County	Estimated Quantity of PCs Contained in Hazardous Wastes (pounds)	Percent of Total Quantity of PCs Contained in Hazardous Wastes
4	TN	Sumner	264,282	83.0%
4	AL	Pike	15,846	5.0%
5	MN	Dakota	14,465	4.5%
3	PA	Berks	9,384	2.9%
6	TX	Collin	6,348	2.0%
3	PA	Beaver	2,827	0.9%
9	CA	Los Angeles	1,176	0.4%
		Total	**314,328**	**98.8%**

Exhibit 6.15 shows how NAICS code 331492 facilities reported managing hazardous wastes that contain PCs. For example, facilities used metals recovery for hazardous wastes containing an estimated 286,000 pounds or 90 percent of PCs. See Appendix E for a full list of the BR management codes and their descriptions.

Exhibit 6.15. Methods Used by NAICS Code 331492 Facilities to Manage Hazardous Wastes Containing Priority Chemicals (2007)

Management Method Group	Management Method Code Description	Quantity of PCs Managed (2007)	Percent of Total Estimated Quantity of PCs
Reclamation and Recovery	Metals recovery including retorting, smelting, chemical, etc.	286,257	90.0%
	Other recovery or reclamation for reuse including acid regeneration, organics recovery, etc.	2,084	0.7%
	Fuel blending prior to energy recovery at another site	527	0.2%
	Solvents recovery	<1	<0.1%
	Reclamation and Recovery Total	**288,868**	**90.8%**
Destruction or Treatment Prior to Disposal at Another Site	Neutralization only	14,410	4.5%
	Stabilization or chemical fixation prior to disposal at another site	12,422	3.9%
	Other treatment	419	0.1%
	Other chemical precipitation with or without pre-treatment	262	0.1%
	Incineration - thermal destruction other than use as a fuel	11	<0.1%
	Chemical oxidation	2	<0.1%
	Destruction or Treatment Prior to Disposal at Another Site Total	**27,526**	**8.7%**
Disposal	Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)	731	0.2%
	Land treatment or application (to include on-site treatment and/or stabilization)	565	0.2%
	Deepwell or underground injection (with or without treatment)	378	0.1%
	Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)	34	<0.1%
	Disposal Total	**1,708**	**0.5%**
Transfer Off Site	Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending, or disposal at this site	58	<0.1%
	Transfer Off Site Total	**58**	**<0.1%**
NA	NA	27	<0.1%
	NA Total	**27**	**<0.1%**
	Grand Total	**318,187**	**100.0%**

Iron and Steel Mills (NAICS Code 331111)

Description of NAICS Code

Establishments primarily engaged in one or more of the following: (1) direct reduction of iron ore; (2) manufacturing pig iron in molten or solid form; (3) converting pig iron into steel; (4) making steel; (5) making steel and manufacturing shapes (e.g., bar, plate, rod, sheet, strip, wire); and (6) making steel and forming tube and pipe. (Source: U.S. Census Bureau)

How Much and Which of the Priority Chemicals Did Facilities in This Industry Generate?

For 2007, 93 facilities in this industry reported generating approximately 10 million pounds of PCs, an increase of approximately 647,000 pounds compared to the quantity generated in 2005 and a decrease of approximately 335,000 pounds, compared to the quantity of PCs generated for 2006 (Exhibit 6.16). Twenty facilities accounted for approximately 80 percent of the total quantity of PCs generated for this industry.

Exhibit 6.16. National Generation of Priority Chemicals by Facilities in NAICS 331111 (2005−2007)

TRI Reporting Year	2005	2006	2007
Total Quantity of Priority Chemicals (pounds)	9,270,225	10,251,710	9,917,169
Number of TRI Facilities in NAICS 331111 Reporting Priority Chemicals	84	88	93

For 2007, facilities in NAICS code 331111 accounted for approximately 12 percent of the total national quantity of PCs generated and reported a significant portion of two PCs: approximately 28 percent of lead and lead compounds and 11 percent of mercury and mercury compounds (Exhibit 6.17).

Exhibit 6.17. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 331111 Facilities (2005–2007) and Comparison to National Quantities (2007)

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for this Industry (2007)	Percent of National Total Quantity of This PC (2007)
	2005	2006	2007		
Lead and lead compounds	9,153,830	10,176,317	9,782,585	98.6%	28.4%
Cadmium and cadmium compounds	36,941	46,076	91,423	0.9%	11.2%
Naphthalene	13,326	11,880	29,862	0.3%	0.2%
Polychlorinated biphenyls (PCBs)	3,018	4,480	5,435	0.1%	6.0%
Mercury and mercury compounds	9,227	9,254	4,230	<0.1%	5.9%
Polycyclic aromatic compounds (PACs)	53,264	2,974	3,269	<0.1%	<0.1%
Phenanthrene	422	447	224	<0.1%	<0.1%
Anthracene	144	177	87	<0.1%	0.1%
Dibenzofuran	35	86	41	<0.1%	0.2%
Benzo(g,h,i)perylene	17	19	12	<0.1%	<0.1%
Dioxin and dioxin-like compounds*	<1	<1	<1	<0.1%	<0.1%
Total	**9,270,225**	**10,251,710**	**9,917,169**	**100.0%**	**11.7%**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Specific details regarding the quantities of three PCs generated by facilities in NAICS code 331111 include:

Lead and lead compounds: Compared to quantities reported for 2005 and 2006, the quantity of lead and lead compounds increased by approximately 647,000 pounds and decreased by approximately 335,000 pounds, respectively, in 2007. Numerous facilities contributed to the increase/decrease quantities for a variety of reasons, including: increased production, disposing of electric arc furnace dusts that previously were recycled, and updating analyses of these dusts containing lead compounds.

Cadmium and cadmium compounds: For 2007, the quantity almost doubled when a facility in Berkeley County, South Carolina reported an increase of approximately 32,000 pounds.

Polycyclic aromatic compounds: For 2006, the quantity decreased by approximately 50,000 pounds when a facility in Allegheny County, Pennsylvania (EPA Region 3) had reported a one-time disposal of accumulated sludge for 2005.

Where Did Facilities in This Industry Generate Priority Chemicals?

For 2007, facilities in 17 counties reported approximately 80 percent of the total quantity of PCs generated for this industry; eight of the counties are in EPA Region 5 (Exhibit 6.18).

Exhibit 6.18. Quantity (80 Percent of Total) of Priority Chemicals, by County, State, EPA Region (2005−2007)

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 331111 (2007)
			2005	2006	2007	
7	IA	Muscatine	865,791	974,958	968,043	9.8%
5	IN	Whitley	726,474	924,424	922,310	9.3%
4	AL	Mobile	1,019,468	1,078,392	812,308	8.2%
7	NE	Stanton	301,767	564,467	583,236	5.9%
8	UT	Box Elder	730,601	510,533	537,492	5.4%
10	OR	Yamhill	404,162	458,349	465,794	4.7%
6	AR	Mississippi	291,886	435,690	417,098	4.2%
5	OH	Stark	438,202	443,328	400,960	4.0%
5	MI	Wayne	463,748	418,695	399,164	4.0%
4	NC	Hertford	344,755	457,556	340,634	3.4%
4	AL	Tuscaloosa	225,588	227,491	328,807	3.3%
3	VA	Roanoke (city)	349,325	362,430	316,994	3.2%
5	IN	Hendricks	186,759	288,781	309,119	3.1%
5	IL	Madison	221,523	291,116	289,674	2.9%
5	IN	De Kalb	266,996	304,342	287,380	2.9%
5	IL	Peoria	235,063	281,067	283,066	2.9%
5	IN	Montgomery	292,625	289,366	250,401	2.5%
		Total	**7,364,735**	**8,310,985**	**7,912,480**	**79.8%**

How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.19 shows how facilities in this industry managed PCs in 2007.

Exhibit 6.19. Management of Priority Chemicals by NAICS 331111 Facilities (2007)

Priority Chemical	Total PC Quantity Reported	Quantity (pounds) of Priority Chemical					
		Disposal		Energy Recovery		Treatment	
		On-site	Off-site	On-site	Off-site	On-site	Off-site
Lead and lead compounds	9,782,585	504,794	9,277,791	0	0	0	0
Cadmium and cadmium compounds	91,423	29,003	62,420	0	0	0	0
Naphthalene	29,862	0	663	6,200	6	22,780	213
Polychlorinated biphenyls (PCBs)	5,435	4,082	1,292	0	0	0	61
Mercury and mercury compounds	4,230	90	4,141	0	0	0	0

Exhibit 6.19. Management of Priority Chemicals by NAICS 331111 Facilities (2007) (Continued)

Priority Chemical	Total PC Quantity Reported	Quantity (pounds) of Priority Chemical					
		Disposal		Energy Recovery		Treatment	
		On-site	Off-site	On-site	Off-site	On-site	Off-site
Polycyclic aromatic compounds (PACs)	3,269	0	1,109	0	0	2,119	41
Phenanthrene	224	0	195	0	0	0	29
Anthracene	87	0	75	0	0	0	12
Dibenzofuran	41	0	36	0	0	0	5
Benzo(g,h,i)perylene	12	0	12	0	0	0	0
Dioxin and dioxin-like compounds*	<1	0	0	0	0	0	0
Total	**9,917,169**	**537,969**	**9,347,734**	**6,200**	**6**	**24,899**	**361**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Disposal: Facilities disposed of nearly all (99.7 percent) of this industry's total PC quantity, mostly off site. Led and lead compounds accounted for 99 percent of this amount. Facilities in this industry also used land disposal to manage 100 percent of the non-recycled quantity of cadmium and cadmium compounds, mercury and mercury compounds, and polychlorinated biphenyls.

Energy Recovery: Facilities only used energy recovery to manage 0.1 percent of the naphthalene.

Treatment: Facilities treated 0.3 percent of this industry's total quantity of PCs, including a large percentage of the naphthalene and the polycyclic aromatic compounds.

In 2007, facilities in this industry also recycled approximately 14.3mllion pounds of PCs. See Exhibit C.3 in Appendix C for additional information about the recycling of PCs in this industry. Facilities also released approximately 97,000 pounds of PCs as air emissions and surface water discharges in 2007. See Appendix D for additional information about releases of PCs for this industry.

Data Derived From Hazardous Waste Biennial Reports for NAICS 331111

In this section, we present data about PCs contained in hazardous wastes, derived from information submitted by NAICS code 331111 facilities in BRs under RCRA. Based on applying our methodology to the 2007 BR data, we estimate that 93 facilities in NAICS code 331111 reported hazardous wastes containing approximately 60 million pounds of PCs. Lead accounted for approximately 97 percent of the total estimated quantity of PCs contained in the hazardous waste streams for this industry (Exhibit 6.20).

Exhibit 6.20. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 331111 (2007)

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Non-wastewaters	Wastewaters	Total Quantity	
Lead	85	405	58,064,741	58,065,146	97.0%
Cadmium	84	616	1,602,471	1,603,087	2.7%
Naphthalene	5	0	76,202	76,202	0.1%
Mercury	30	<1	72,806	72,806	0.1%
Phenanthrene	5	0	33,855	33,855	0.1%
Acenaphthylene	5	0	19,894	19,894	<0.1%
Polycyclic aromatic compound (PAC) Group in the Toxics Release Inventory (TRI)					
Benzo(a)pyrene	3	0	1,512	1,512	<0.1%
Indeno[1,2,3-cd]pyrene	2	0	1,500	1,500	<0.1%
Benzo(a)anthracene	3	0	1,406	1,406	<0.1%
Benzo(b)fluoranthene	3	0	975	975	<0.1%
Benzo(k)fluoranthene	3	0	975	975	<0.1%
Dibenzo(a,h)anthracene	2	0	431	431	<0.1%
Total	**241***	**1,021**	**59,876,768**	**59,877,789**	**100.0%**

*Total number of facilities is not additive because wastes from a facility may contain more than one PC.

In 2007, facilities in NAICS code 331111 generated hazardous waste containing PCs in 75 counties within 30 states. Facilities in 22 counties generated an estimated one million or more pounds of PCs contained in hazardous wastes (Exhibit 6.21). See Appendix E for a full list of the BR management codes and their descriptions.

Exhibit 6.21. States and Counties in Which Facilities in NAICS Code 331111 Generated 80 Percent of Priority Chemicals Contained in Primary Generation Hazardous Waste (2007)

EPA Region	State	County	Estimated Quantity of PCs Contained in Hazardous Wastes (pounds)	Percent of Total Quantity of PCs Contained in Hazardous Wastes
6	AR	Mississippi	6,889,468	11.5%
4	SC	Berkeley	4,040,585	6.7%
5	IN	Montgomery	3,504,634	5.9%
4	NC	Hertford	2,129,612	3.6%
4	AL	Mobile	2,111,710	3.5%
4	KY	Carroll	2,014,826	3.4%
5	MI	Monroe	1,928,134	3.2%
7	NE	Stanton	1,874,018	3.1%
7	IA	Muscatine	1,819,584	3.0%
6	TX	Leon	1,650,720	2.8%
4	AL	Tuscaloosa	1,644,974	2.7%
6	TX	Ellis	1,476,784	2.5%
5	OH	Stark	1,416,489	2.4%
5	IN	Whitley	1,413,557	2.4%
3	PA	Butler	1,409,067	2.4%
4	SC	Darlington	1,247,204	2.1%
6	TX	Guadalupe	1,227,562	2.1%
10	OR	Yamhill	1,212,042	2.0%
5	OH	Jefferson	1,171,295	2.0%
5	IL	Peoria	1,055,508	1.8%
8	UT	Box Elder	1,047,434	1.7%
5	IL	Kankakee	1,039,418	1.7%
4	AL	Jefferson	948,775	1.6%
10	WA	King	925,573	1.5%
3	PA	Dauphin	910,827	1.5%
4	KY	Boone	896,165	1.5%
5	IN	Hendricks	861,361	1.4%
		Total	**47,867,326**	**79.9%**

Exhibit 6.22 shows how NAICS code 331111 facilities reported managing hazardous wastes that contain PCs. For example, facilities used metals recovery for hazardous wastes containing an estimated 21.5 million pounds of PCs, disposed of hazardous wastes containing an estimated 13.1 million pounds of PCs in landfills or surface impoundments, and stabilized an estimated 13 million pounds prior to disposal at another site.

Exhibit 6.22. Methods Used by NAICS Code 331111 Facilities to Manage Hazardous Wastes Containing Priority Chemicals (2007)

Management Method Group	Management Method Code Description	Quantity of PCs Managed (2007)	Percent of Total Estimated Quantity of PCs
Reclamation and Recovery	Metals recovery including retorting, smelting, chemical, etc.	21,471,030	36.9%
	Other recovery or reclamation for reuse including acid regeneration, organics recovery, etc.	1,470,180	2.5%
	Fuel blending prior to energy recovery at another site	2	<0.1%
	Energy recovery at this site - use as fuel (includes on-site fuel blending)	<1	<0.1%
	Solvents recovery	<1	<0.1%
	Reclamation and Recovery Total	**22,941,212**	**39.4%**
Disposal	Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)	13,082,179	22.5%
	Land treatment or application (to include on-site treatment and/or stabilization)	889,219	1.5%
	Deepwell or underground injection (with or without treatment)	271	<0.1%
	Disposal Total	**13,971,669**	**24.0%**
Destruction or Treatment Prior to Disposal at Another Site	Stabilization or chemical fixation prior to disposal at another site	12,997,840	22.3%
	Incineration - thermal destruction other than use as a fuel	75,363	0.1%
	Other treatment	5,497	<0.1%
	Macro-encapsulation prior to disposal at another site	271	<0.1%
	Other chemical precipitation with or without pre-treatment	197	<0.1%
	Chemical reduction with or without precipitation	3	<0.1%
	Sludge treatment and/or dewatering	<1	<0.1%
	Settling or clarification	<1	<0.1%
	Destruction or Treatment Prior to Disposal at Another Site Total	**13,079,171**	**22.5%**
Transfer Off Site	Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending, or disposal at this site	5,882,980	10.1%
	Transfer Off Site Total	**5,882,980**	**10.1%**
NA	NA	2,366,722	4.1%
	NA Total	**2,366,722**	**4.1%**
	Grand Total	**58,241,754**	**100.0%**

All Other Basic Organic Chemical Manufacturing (NAICS Code 325199)

Description of NAICS Code

Establishments primarily engaged in manufacturing basic organic chemical products (except aromatic petrochemicals, industrial gases, synthetic organic dyes and pigments, gum and wood chemicals, cyclic crudes and intermediates, and ethyl alcohol). (Source: U.S. Census Bureau)

How Much and Which of the Priority Chemicals Did Facilities in This Industry Generate?

For 2007, 63 facilities in this industry reported approximately 7.8 million pounds of PCs, an increase of approximately 1.1 million pounds compared to the quantity generated in 2005 and an increase of approximately 1.4 million pounds, compared to the quantity of PCs generated for 2006 (Exhibit 6.23). One facility accounted for approximately 79 percent of the total quantity of PCs generated for this industry.

Exhibit 6.23. National Generation of Priority Chemicals by Facilities in NAICS 325199 (2005−2007)

TRI Reporting Year	2005	2006	2007
Total Quantity of Priority Chemicals (pounds)	6,730,385	6,427,403	7,780,463
Number of TRI Facilities in NAICS 325199 Reporting Priority Chemicals	68	65	63

For 2007, facilities in NAICS code 325199 reported approximately 9 percent of the national total quantity of PCs generated and a significant portion of the total quantity for numerous PCs (Exhibit 6.24), including approximately:

- 74 percent of polychlorinated biphenyls (PCBs)
- 60 percent of hexachloroethane
- 51 percent of dioxin and dioxin-like compounds
- 40 percent of pentachlorobenzene
- 29 percent of hexachloro-1,3-butadiene
- 12 percent of anthracene

Specific details regarding the quantities of three PCs generated by facilities in NAICS code 325199 include:

Hexachloroethane: Compared to quantities reported for 2006, the quantity of hexachloroethane increased by approximately 835,000 pounds in 2007. A facility in Iberville County, Louisiana (EPA Region 6) reported an increase of approximately 900,000 pounds.

Naphthalene: For 2007, the quantity increased by approximately 321,000 pounds when two facilities -- in Midland County, Michigan (EPA Region 5) and in Brazoria County, Texas (EPA Region 6) reported approximately 103,000 pounds and 266,000 pounds, respectively – subsequent to not reporting this PC in 2005 or 2006.

Polychlorinated biphenyls (PCBs): For 2006, the quantity increased by approximately 20,000 pounds when a facility in Maury County, Tennessee (EPA Region 4) reported an increase of approximately 20,500 pounds. This facility noted that PCBs are produced as a residual from a high temperature catalytic process; the quantity of PCBs generated correlates to production quantity.

1,2,4-Trichlorobenzene: For 2007, the quantity increased by approximately 15,000 pounds when a facility in Iberville County, Louisiana (EPA Region 6) reported an increase of approximately 15,600 pounds.

Mercury and mercury compounds: For 2006, the quantity increased by approximately 22,000 pounds when a facility in New Haven County, Connecticut (EPA Region 1) reported approximately 21,000 pounds, compared to none for 2005 when the facility did not meet the TRI reporting threshold of 10 full-time employees.

Exhibit 6.24. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 325199 Facilities (2005–2007) and Comparison to National Quantities (2007)

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for this Industry (2007)	Percent of National Total Quantity of This PC (2007)
	2005	2006	2007		
Hexachloroethane	2,722,594	2,467,855	3,302,622	42.4%	60.2%
Hexachloro-1,3-butadiene	2,605,986	2,873,394	2,951,761	37.9%	28.6%
Naphthalene	707,484	556,075	876,661	11.3%	7.3%
Pentachlorobenzene	200,687	152,714	236,521	3.0%	39.5%
Hexachlorobenzene	166,068	186,172	198,788	2.6%	3.0%
Lead and lead compounds	46,657	43,075	69,342	0.9%	0.2%
Polychlorinated biphenyls (PCBs)	46,809	66,949	66,419	0.9%	73.6%
Cadmium and cadmium compounds	45,570	9,838	25,889	0.3%	3.2%
1,2,4-Trichlorobenzene	406	3,280	18,550	0.2%	1.4%
Anthracene	20,138	15,278	18,319	0.2%	11.9%
Phenanthrene	156,527	21,657	8,855	0.1%	0.6%
Mercury and mercury compounds	175	22,462	3,789	<0.1%	5.2%
Polycyclic aromatic compounds (PACs)	10,683	8,471	2,645	<0.1%	<0.1%
Dioxin and dioxin-like compounds*	40	162	228	<0.1%	50.6%
Benzo(g,h,i)perylene	560	21	54	<0.1%	<0.1%
Pentachlorophenol	0	0	21	<0.1%	0.1%
Total	**6,730,385**	**6,427,403**	**7,780,463**	**100.0%**	**9.2%**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Where Did Facilities in This Industry Generate Priority Chemicals?

Since 2005, one facility, located in Iberville County, Louisiana (EPA Region 6), reported an average of 82 percent of the PCs generated in this industry, including approximately 79 percent for 2007 (Exhibit 6.25).

Exhibit 6.25. Quantity of Priority Chemicals, by County, State, EPA Region (2005−2007)

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 325199 (2007)
			2005	2006	2007	
6	LA	Iberville	5,489,369	5,060,068	6,138,596	78.9%
6	TX	Harris	212,583	670,676	455,076	5.8%
6	TX	Brazoria	370	509	267,263	3.4%
4	TN	Shelby	142,508	91,679	134,289	1.7%
6	TX	Harrison	167,468	146,525	130,119	1.7%
5	MI	Midland	0	68	103,055	1.3%
6	TX	Galveston	91,872	60,346	98,086	1.3%
6	TX	Jefferson	93,986	78,947	75,422	1.0%
6	TX	San Patricio	480	41,974	74,159	1.0%
4	GA	Polk	108,125	94,459	60,242	0.8%
4	TN	Maury	45,843	66,343	59,327	0.8%
4	AL	Mobile	6,000	5,500	57,651	0.7%
		Total	**6,358,604**	**6,317,095**	**7,653,286**	**98.4%**

How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.26 shows how facilities in this industry managed PCs in 2007.

Exhibit 6.26. Management of Priority Chemicals by NAICS 325199 Facilities (2007)

Priority Chemical	Total PC Quantity Reported	Quantity (pounds) of Priority Chemical					
		Disposal		Energy Recovery		Treatment	
		On-site	Off-site	On-site	Off-site	On-site	Off-site
Hexachloroethane	3,302,622	0	0	0	0	3,146,934	155,688
Hexachloro-1,3-butadiene	2,951,761	0	0	0	0	2,948,515	3,246
Naphthalene	876,661	68	2,607	507,350	24,972	273,275	68,389
Pentachlorobenzene	236,521	0	0	0	0	236,102	419
Hexachlorobenzene	198,788	14	8	0	0	169,450	29,316
Lead and lead compounds	69,342	3,089	66,253	0	0	0	0
Polychlorinated biphenyls (PCBs)	66,419	0	24	0	0	7,043	59,352
Cadmium and cadmium compounds	25,889	0	25,889	0	0	0	0
1,2,4-Trichlorobenzene	18,550	0	0	0	17,544	1	1,005
Anthracene	18,319	30	132	16,341	1,140	540	136
Phenanthrene	8,855	90	501	0	4,804	540	2,920
Mercury and mercury compounds	3,789	14	3,776	0	0	0	0
Polycyclic aromatic compounds (PACs)	2,645	3	33	0	443	260	1,906
Dioxin and dioxin-like compounds*	228	6	124	0	0	76	22
Benzo(g,h,i)perylene	54	0	1	0	0	52	0
Pentachlorophenol	21	0	0	0	0	0	21
Total	**7,780,463**	**3,314**	**99,348**	**523,691**	**48,903**	**6,782,788**	**322,419**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Disposal: Facilities disposed of approximately 1 percent of this industry's total quantity of PCs, primarily for the three metals and their compounds: cadmium, lead, and mercury.

Energy Recovery: Facilities used energy recovery, mostly on site, to manage approximately 7 percent of this industry's PCs. In addition to approximately 95 percent of the anthracene, facilities used energy recovery for approximately 61 percent of the naphthalene.

Treatment: Facilities treated, primarily on site, approximately 91 percent of this industry's PCs, including 100 percent of six of the PCs.

In 2007, facilities in this industry also recycled approximately 6.2 million pounds of PCs. See Exhibit C.3 in Appendix C for additional information about the recycling of PCs in this industry. Facilities also released approximately 26,000 pounds of PCs as air emissions and surface water discharges in 2007. See Appendix D for additional information about releases of PCs for this industry.

Data Derived From Hazardous Waste Biennial Reports for NAICS 325199

In this section, we present data about PCs contained in hazardous wastes, derived from information submitted by NAICS code 325199 facilities in BRs under RCRA.

Based on applying our methodology to the 2007 BR data, we estimate that 154 facilities in NAICS code 325199 reported hazardous wastes containing approximately 6.8 million pounds of PCs (Exhibit 6.27).

Exhibit 6.27. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 325199 (2007)

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Wastewaters	Non-Wastewaters	Total Quantity	
Hexachlorobutadiene	6	0	1,682,531	1,682,531	24.7%
Hexachloroethane	6	0	1,329,683	1,329,683	19.5%
Hexachlorobenzene	8	0	1,272,297	1,272,297	18.7%
Pentachlorobenzene	6	0	902,798	902,798	13.3%
Lead	89	2,311	517,024	519,335	7.6%
Naphthalene	8	0	497,684	497,684	7.3%
1,2,4-Trichlorobenzene	5	0	313,186	313,186	4.6%
1,2,4,5-Tetrachlorobenzene	6	0	147,560	147,560	2.2%
Mercury	99	17,365	106,696	124,061	1.8%
Cadmium	49	7	14,358	14,365	0.2%
Phenanthrene	7	0	150	150	<0.1%
Polycyclic Aromatic compounds (PACs)	4	0	62	62	<0.1%
Anthracene	1	0	40	40	<0.1%
Pyrene	1	0	7	7	<0.1%
4-Bromophenyl phenyl ether	2	0	<1	<1	<0.1%
Total	**295***	**19,683**	**6,784,076**	**6,803,759**	**100.0%**

*Total number of facilities is not additive because wastes from a facility may contain more than one PC.

In 2007, facilities in NAICS code 325199 generated hazardous waste containing PCs in 87 counties within 29 states. Facilities in nine counties in Louisiana and Texas (EPA Region 6) generated an estimated 6.8 million or more pounds or 99 percent of PCs contained in hazardous wastes (Exhibit 6.28).

Exhibit 6.28. States and Counties in Which Facilities in NAICS Code 325199 Generated 99 Percent of Priority Chemicals Contained in Primary Generation Hazardous Waste (2007)

EPA Region	State	County	Estimated Quantity of PCs Contained in Hazardous Wastes (pounds)	Percent of Total Quantity of PCs Contained in Hazardous Wastes
6	TX	Brazoria	3,556,009	52.3%
6	LA	Iberville	2,044,335	30.0%
6	TX	San Patricio	474,055	7.0%
6	TX	Jefferson	429,539	6.3%
6	TX	Harris	121,850	1.8%
6	TX	Harrison	67,437	1.0%
6	LA	St Charles	22,138	0.3%
6	TX	Ector	21,901	0.3%
6	TX	Nueces	21,004	0.3%
		Total	**6,758,269**	**99.3%**

Exhibit 6.29 shows how NAICS code 325199 facilities reported managing hazardous wastes that contain PCs. For example, facilities used recovery/reclamation for hazardous wastes containing an estimated 4.5 million pounds of PCs and incinerated hazardous wastes containing an estimated 1.8 million pounds of PCs. See Appendix E for a full list of the BR management codes and their descriptions.

Exhibit 6.29. Methods Used by NAICS Code 325199 Facilities to Manage Hazardous Wastes Containing Priority Chemicals (2007)

Management Method Group	Management Method Code Description	Quantity of PCs Managed (2007)	Percent of Total Estimated Quantity of PCs
Reclamation and Recovery	Energy recovery at this site - use as fuel (includes on-site fuel blending)	2,459,070	35.8%
	Other recovery or reclamation for reuse including acid regeneration, organics recovery, etc.	1,956,947	28.5%
	Fuel blending prior to energy recovery at another site	41,410	0.6%
	Metals recovery including retorting, smelting, chemical, etc.	1,181	<0.1%
	Solvents recovery	466	<0.1%
	Reclamation and Recovery Total	**4,459,074**	**65.0%**
Destruction or Treatment Prior to Disposal at Another Site	Incineration - thermal destruction other than use as a fuel	1,829,596	26.7%
	Stabilization or chemical fixation prior to disposal at another site	12,555	0.2%
	Other chemical precipitation with or without pre-treatment	676	<0.1%
	Biological treatment with or without precipitation	527	<0.1%
	Other treatment	512	<0.1%
	Macro-encapsulation prior to disposal at another site	1	<0.1%
	Chemical reduction with or without precipitation	<1	<0.1%
	Chemical oxidation	<1	<0.1%
	Neutralization only	<1	<0.1%
	Phase separation	<1	<0.1%
	Destruction or Treatment Prior to Disposal at Another Site Total	**1,843,867**	**26.9%**
Disposal	Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)	467,380	6.8%
	Deepwell or underground injection (with or without treatment)	17,296	0.3%
	Land treatment or application (to include on-site treatment and/or stabilization)	661	<0.1%
	Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)	12	<0.1%
	Disposal Total	**485,349**	**7.1%**
Transfer Off Site	Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending, or disposal at this site	73,453	1.1%
	Transfer Off Site Total	**73,453**	**1.1%**
NA	NA	507	<0.1%
	NA Total	**507**	**<0.1%**
	Grand Total	**7,386,708**	**100.0%**

Plastics Material and Resin Manufacturing (NAICS Code 325211)

Description of NAICS Code

Establishments primarily engaged in (1) manufacturing resins, plastics materials, and nonvulcanizable thermoplastic elastomers and mixing and blending resins on a custom basis and/or (2) manufacturing noncustomized synthetic resins. (Source: U.S. Census Bureau)

How Much and Which of the Priority Chemicals Did Facilities in This Industry Generate?

For 2007, 59 facilities in this industry generated approximately 5.6 million pounds of PCs, approximately the same quantity generated in 2005 and an increase of approximately 1.6 million pounds, compared to the quantity of PCs generated for 2006 (Exhibit 6.30).

Exhibit 6.30. National Generation of Priority Chemicals by Facilities in NAICS 325211 (2005−2007)

TRI Reporting Year	2005	2006	2007
Total Quantity of Priority Chemicals (pounds)	5,634,590	3,990,925	5,614,944
Number of TRI Facilities in NAICS 325211 Reporting Priority Chemicals	69	65	59

For 2007, facilities in NAICS code 325211 reported approximately 7 percent of the national total quantity of PCs and a significant portion of several PCs (Exhibit 6.31), including approximately:

- 79 percent of hexachlorobenzene
- 25 percent of dioxin and dioxin-like compounds
- 11 percent of pentachlorobenzene

Exhibit 6.31. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 325211 Facilities (2005–2007) and Comparison to National Quantities (2007)

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for this Industry (2007)	Percent of National Total Quantity of This PC (2007)
	2005	2006	2007		
Hexachlorobenzene	4,366,198	3,332,648	5,138,293	91.5%	78.8%
Naphthalene	955,939	362,724	177,730	3.2%	1.5%
Polycyclic aromatic compounds (PACs)	203,925	138,281	142,418	2.5%	1.4%
Pentachlorobenzene	2,629	1,800	64,717	1.2%	10.8%
Lead and lead compounds	48,522	42,290	47,229	0.8%	0.1%
Hexachloro-1,3-butadiene	44,006	22,010	21,010	0.4%	0.2%
Hexachloroethane	5,356	87,177	19,516	0.3%	0.4%
Benzo(g,h,i)perylene	4,761	1,950	2,214	<0.1%	0.3%
Polychlorinated biphenyls (PCBs)	557	69	1,159	<0.1%	1.3%
Mercury and mercury compounds	708	631	546	<0.1%	0.8%
Dioxin and dioxin-like compounds*	12	13	112	<0.1%	24.9%
1,2,4-Trichlorobenzene	900	844	0	0.0%	0.0%
Anthracene	16	0	0	0.0%	0.0%
Heptachlor	9	0	0	0.0%	0.0%
Trifluralin	1,052	488	0	0.0%	0.0%
Total	**5,634,590**	**3,990,925**	**5,614,944**	**100.0%**	**6.6%**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Specific details regarding the quantities of several of the PCs reported by facilities in this industry include:

Hexachlorobenzene: For 2006, a facility in Iberville County, Louisiana reported a decrease of approximately one million pounds followed by an increase of approximately 1.8 million pounds for 2007.

Naphthalene: A facility in Ector County, Texas reported decreases of approximately 417,000 pounds and 166,000 pounds for 2006 and 2007, respectively. This facility attributes the decreased quantities to its selling waste streams containing naphthalene to another company as feedstock.

Pentachlorobenzene: For 2007, a facility in Brazoria County, Texas, that had previously reported pentachlorobenzene under NAICS code 325520 (Adhesives manufacturing), reported approximately 63,000 pounds under NAICS code 325211.

Hexachloroethane: A facility in Lenawee County, Michigan reported an increase of approximately 82,000 pounds for 2006, followed by a decrease of approximately 68,000 pounds for 2007. The facility noted that hexachloroethane is a component of three separate waste streams and there is some variability in the concentration of this PC in each of these waste streams. For the 2006 reporting year, the facility determined the quantity of hexachloroethane sent off site by designating the highest concentration percentage listed within the waste characterization profiles and applying it to the quantity of the waste shipments sent off site in 2006.

Where Did Facilities in This Industry Generate Priority Chemicals?

In 2007, NAICS code 325211 facilities in eight counties accounted for approximately 99 percent of the total quantity of PCs generated for this industry. Since 2005, a facility located in Iberville County, Louisiana (EPA Region 6) accounted for an average of approximately 84 percent of the total quantity of PCs in this industry, including approximately 92 percent for 2007 (Exhibit 6.32).

Exhibit 6.32. Quantity of Priority Chemicals, by County, State, EPA Region (2005−2007)

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 325211 (2007)
			2005	2006	2007	
6	LA	Iberville	4,413,056	3,356,600	5,161,733	91.9%
4	SC	Berkeley	125,025	122,374	124,568	2.2%
3	PA	Allegheny	101,302	86,437	78,667	1.4%
6	TX	Ector	654,465	236,694	71,059	1.3%
6	TX	Brazoria	154,801	844	65,201	1.2%
4	TN	Sullivan	37,046	33,509	36,564	0.7%
5	MI	Lenawee	5,356	87,177	19,517	0.3%
4	FL	Escambia	77,301	14,230	19,226	0.3%
		Total	**5,568,352**	**3,937,864**	**5,576,535**	**99.3%**

How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.33 shows how facilities in this industry managed PCs in 2007.

Exhibit 6.33. Management of Priority Chemicals by NAICS 325211 Facilities (2007)

Priority Chemical	Total PC Quantity Reported	Quantity (pounds) of Priority Chemical					
		Disposal		Energy Recovery		Treatment	
		On-site	Off-site	On-site	Off-site	On-site	Off-site
Hexachlorobenzene	5,138,293	10	0	0	0	5,135,049	3,234
Naphthalene	177,730	2	11,554	0	158,318	5,101	2,755
Polycyclic aromatic compounds (PACs)	142,418	728	104	18,378	0	123,208	0
Pentachlorobenzene	64,717	10	0	0	0	64,604	103
Lead and lead compounds	47,229	38,026	9,203	0	0	0	0
Hexachloro-1,3-butadiene	21,010	0	0	0	0	21,000	10
Hexachloroethane	19,516	0	0	0	17,055	0	2,461
Benzo(g,h,i)perylene	2,214	0	0	854	0	1,360	0
Polychlorinated biphenyls (PCBs)	1,159	0	0	0	0	1,067	92
Mercury and mercury compounds	546	279	267	0	0	0	0
Dioxin and dioxin-like compounds*	112	0	1	0	0	51	60
Total	**5,614,944**	**39,055**	**21,129**	**19,232**	**175,373**	**5,351,440**	**8,716**

* Facilities report dioxin and dioxin-like compounds to TRI in grams, with a reporting threshold of 0.1 grams. For the purposes of this table, we converted the quantity reported as grams to pounds.

Disposal: Facilities disposed of only approximately 1 percent of this industry's total non-recycled quantity of PCs generated, primarily lead and mercury.

Energy Recovery: Facilities used energy recovery, mostly on site, to manage 3.5 percent of the PCs, including approximately 89 percent of the naphthalene and 87 percent of the hexachloroethane.

Treatment: Facilities treated (primarily on site) approximately 95.5 percent of this industry's total non-recycled quantity of PCs generated, including most of the hexachlorobenzene, polycyclic aromatic compounds, pentachlorobenzene, hexachloro-1,3-butadiene, benzo(g,h,i)perylene, polychlorinated biphenyls, and dioxins.

In 2007, facilities in this industry also recycled approximately 210,000 pounds of PCs. See Exhibit C.3 in Appendix C for additional information about the recycling of PCs in this industry. Facilities also released approximately 27,000 pounds of PCs as air emissions and surface water discharges in 2007. See Appendix D for additional information about releases of PCs for this industry.

Data Derived From Hazardous Waste Biennial Reports for NAICS 325211

In this section, we present data about PCs contained in hazardous wastes, derived from information submitted by NAICS code 325211 facilities in BRs under RCRA. Based on applying our methodology to the 2007 BR data, we estimate that 112 facilities in NAICS code 325211 reported hazardous wastes containing approximately 223,000 pounds of PCs. Lead accounted for approximately 85 percent of the total estimated quantity of PCs contained in the hazardous waste streams for this industry (Exhibit 6.34).

Exhibit 6.34. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 325211 (2007)

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Wastewaters	Non-Wastewaters	Total Quantity	
Lead	53	136,559	54,048	190,608	85.4%
Mercury	80	3	32,129	32,132	14.4%
1,2,4,5-Tetrachlorobenzene	2	0	204	204	0.1%
1,2,4-Trichlorobenzene	2	0	102	102	<0.1%
Cadmium	35	8	81	89	<0.1%
Hexachloroethane	4	0	18	18	<0.1%
Naphthalene	2	0	10	10	<0.1%
Hexachlorobenzene	4	0	7	7	<0.1%
Hexachlorobutadiene	5	0	1	1	<0.1%
Pentachlorobenzene	2	0	<1	<1	<0.1%
Phenanthrene	1	0	<1	<1	<0.1%
Total	**190***	**136,570**	**86,600**	**223,171**	**100.0%**

*Total number of facilities is not additive because wastes from a facility may contain more than one PC.

In 2007, facilities in NAICS code 331111 generated hazardous waste containing PCs in 90 counties within 28 states. A facility in Pickaway County, Ohio (EPA Region 5) generated an estimated 129,000 pounds or 58 percent of PCs contained in hazardous wastes (Exhibit 6.35).

Exhibit 6.35. States and Counties in Which Facilities in NAICS Code 325211 Generated 97 Percent of Priority Chemicals Contained in Primary Generation Hazardous Waste (2007)

EPA Region	State	County	Estimated Quantity of PCs Contained in Hazardous Wastes (pounds)	Percent of Total Quantity of PCs Contained in Hazardous Wastes
5	OH	Pickaway	128,555	57.6%
3	PA	Allegheny	40,622	18.2%
7	MO	St Louis City	29,902	13.4%
5	OH	Delaware	10,991	4.9%
3	VA	Warren	6,468	2.9%
		Total	**216,538**	**97.0%**

Exhibit 6.36 shows how NAICS code 325211 facilities reported managing hazardous wastes that contain PCs. For example, facilities used chemical precipitation to treat hazardous wastes containing an estimated 115,000 pounds of PCs and incinerated hazardous wastes containing an estimated 48,000 million pounds of PCs. See Appendix E for a full list of the BR management codes and their descriptions.

Exhibit 6.36. Methods Used by NAICS Code 325211 Facilities to Manage Hazardous Wastes Containing Priority Chemicals (2007)

Management Method Group	Management Method Code Description	Quantity (pounds) of PCs Managed (2007)	Percent of Total Estimated Quantity of PCs
Destruction or Treatment Prior to Disposal at Another Site	Other chemical precipitation with or without pre-treatment	115,158	48.4%
	Incineration - thermal destruction other than use as a fuel	48,068	20.2%
	Phase separation	26,893	11.3%
	Stabilization or chemical fixation prior to disposal at another site	11,078	4.7%
	Sludge treatment and/or dewatering	<1	<0.1%
	Neutralization only	<1	<0.1%
Destruction or Treatment Prior to Disposal at Another Site Total		**201,197**	**84.5%**
Reclamation and Recovery	Fuel blending prior to energy recovery at another site	32,447	13.6%
	Metals recovery including retorting, smelting, chemical, etc.	109	<0.1%
	Energy recovery at this site - use as fuel (includes on-site fuel blending)	14	<0.1%
	Other recovery or reclamation for reuse including acid regeneration, organics recovery, etc.	14	<0.1%
	Solvents recovery	3	<0.1%
Reclamation and Recovery Total		**32,587**	**13.7%**
NA	NA	1,945	0.8%
NA Total		**1,945**	**0.8%**
Transfer Off Site	Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending, or disposal at this site	1,718	0.7%
Transfer Off Site Total		**1,718**	**0.7%**
Disposal	Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)	645	0.3%
	Land treatment or application (to include on-site treatment and/or stabilization)	34	0.0%
Disposal Total		**679**	**0.3%**
Grand Total		**238,126**	**100.0%**