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## National Priority Chemicals Trends Report (2004-2006)

### Section 6 Priority Chemical Analyses for Specific Industry Sectors

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# SECTION 6

## PRIORITY CHEMICAL ANALYSES FOR SPECIFIC INDUSTRY SECTORS

### Introduction

In this section, we look at the generation and management of PCs by facilities within the five North American Industry Classification System (NAICS) codes, or industries, in which facilities reported the largest quantities of PCs for 2006.<sup>15</sup> (Exhibit 6.1) Facilities in these five industries accounted for approximately 55 percent of the total national quantity of PCs generated. We present generation and management trends at the national, EPA regional, state, and county levels for each of these industries.

**Exhibit 6.1. Industries with Largest Quantity of Priority Chemicals (2006)**

NAICS Code	NAICS Code Description	Total PC Quantity	Percent of National Total PC Quantity
325181	Alkalies and Chlorine Manufacturing	13,408,621	17.7%
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	11,410,674	15.0%
331111	Iron and Steel Mills	10,108,076	13.3%
335991	Carbon and Graphite Product Manufacturing	3,291,125	4.3%
331312	Primary Aluminum Production	3,233,397	4.3%

For the first time, we also present data for these PCs that were derived from the BR. A BR must be submitted by LQGs<sup>16</sup> and treatment, storage, and disposal facilities (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. To learn more about this methodology, called the PC-BR Measurement Methodology, please see

<http://www.epa.gov/epaoswer/hazwaste/minimize/trends.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.

<sup>15</sup> In determining the top 5 industries to address in this section, we excluded NAICS code 928110 (National security) which consists of federal facilities, separately addressed in Section 5 of this Report. For 2006, federal facilities in NAICS code 928110 reported approximately 4.4 million pounds or 5.8 percent of the national total quantity of PCs generated.

<sup>16</sup> An LQG is a facility that generates greater than 1,000 kilograms (2,200 pounds) of hazardous waste or 1 kg of acute hazardous waste in a calendar month.

# Alkalies and Chlorine Manufacturing (NAICS Code 325181)

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## 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)

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

For 2006, 18 facilities in this industry reported generating approximately 13.4 million pounds of PCs, about the same quantity reported in 2005 and an increase of approximately 5.0 million pounds, compared to the quantity of PCs reported for 2004 (Exhibit 6.2). Three facilities reported nearly 100 percent of the total quantity of PCs for this industry.

**Exhibit 6.2. National Generation of Priority Chemicals by Facilities in NAICS 325181 (2004–2006)**

TRI Reporting Year	2004	2005	2006
Total Quantity of Priority Chemicals (pounds)	8,434,467	13,125,343	13,408,621
Number of TRI Facilities in NAICS 325181 Reporting Priority Chemicals	17	17	18

For 2006, facilities in NAICS code 325181 accounted for approximately 18 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:

- 99% of hexachloro-1,3-butadiene
- 95% of 1,2,4-trichlorobenzene
- 85% of anthracene
- 75% of hexachloroethane
- 83% of pentachlorobenzene
- 53% of hexachlorobenzene
- 22% of mercury and mercury compounds

**Exhibit 6.3. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 325181 Facilities (2004–2006) and Comparison to National Quantities (2006)**

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for This Industry (2006)	Percent of National Total Quantity of This PC (2006)
	2004	2005	2006		
Hexachloro-1,3-butadiene	4,965,637	7,417,120	7,014,209	52.3%	99.1%
Anthracene	26,362	0	2,022,651	15.1%	85.2%
Hexachloroethane	513,776	3,266,864	1,611,218	12.0%	75.3%
1,2,4-trichlorobenzene	1,500,850	1,199,791	1,307,675	9.8%	95.4%
Hexachlorobenzene	742,935	794,071	644,768	4.8%	52.9%
Naphthalene	285,514	97,145	446,124	3.3%	3.2%
Pentachlorobenzene	380,240	305,962	328,698	2.5%	82.7%
Mercury and mercury compounds	4,401	4,491	15,997	0.1%	21.6%
Polychlorinated biphenyls	13,416	22,914	15,632	0.1%	14.4%
Lead and lead compounds	1,258	2,594	1,346	<0.1%	<0.1%
Pentachlorophenol	0	14,309	186	<0.1%	1.3%
Dioxin and dioxin-like compounds*	78	81	80	<0.1%	15.9%
Cadmium and cadmium compounds	0	0	36	<0.1%	<0.1%
<b>Total</b>	<b>8,434,467</b>	<b>13,125,343</b>	<b>13,408,621</b>	<b>100.0%</b>	<b>17.7%</b>

\* 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:** For 2005, the total quantity of hexachloro-1,3-butadiene increased by approximately 2.5 million pounds. Two Louisiana facilities accounted for most of this change: a facility located in Ascension County attributed an increase of approximately 3.1 million pounds from 2004–2005 to changes in feedstock composition; another facility, located in Calcasieu County, reported a decrease of approximately 618,000 pounds due to hurricane-related operational problems.

**Anthracene:** For 2006, the total quantity increased by approximately 2 million pounds. Only one facility in this industry reported anthracene from 2004 to 2006. This facility, located in Brazoria County, Texas, did not report any anthracene in 2005.

**Hexachloroethane:** For 2005, the total quantity of hexachloroethane increased by approximately 2.8 million pounds and then, for 2006, decreased by approximately 1.7 million pounds. Two facilities primarily accounted for these fluctuations: 1) a facility located in Ascension County, Louisiana reported an increase of approximately 1.3 million pounds for 2005 followed by a decrease of 310,000 pounds for 2006 due to analytical variability and changes in production activity, 2) a facility located in Brazoria County, Texas reported an increase of 1.5 million pounds for 2005 followed by a decrease of approximately 2.3 million pounds for 2006.

## Where Did Facilities in This Industry Generate Priority Chemicals?

Since 2004, facilities in NAICS code 325181 in three Region 6 counties: 1) Calcasieu County, Louisiana, 2) Ascension County, Louisiana, and 3) Brazoria County, Texas accounted for nearly all of the PCs in this industry, including 99.7 percent for 2006 (Exhibit 6.4).

**Exhibit 6.4. Quantity of Priority Chemicals, by County, State, EPA Region (2004–2006)**

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 325181 (2006)
			2004	2005	2006	
6	LA	Calcasieu	6,801,024	5,691,216	5,978,298	44.6%
6	LA	Ascension	1,245,720	5,759,065	4,726,567	35.3%
6	TX	Brazoria	381,527	1,643,184	2,664,348	19.9%
6	LA	St James	<1	10,253	14,059	0.1%
3	WV	Marshall	2,523	3,871	10,089	0.1%
6	LA	Iberville	261	621	9,252	0.1%

**Exhibit 6.4. Quantity of Priority Chemicals, by County, State, EPA Region (2004–2006) (Continued)**

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 325181 (2006)
			2004	2005	2006	
3	DE	New Castle	1,019	904	3,710	<0.1%
2	NY	Niagara	184	182	691	<0.1%
4	TN	Bradley	317	260	484	<0.1%
5	OH	Ashtabula	134	434	306	<0.1%
4	AL	Colbert	606	389	299	<0.1%
7	KS	Sedgwick	770	14,322	206	<0.1%
5	WI	Wood	347	421	162	<0.1%
4	GA	Richmond	36	136	149	<0.1%
6	TX	Harris	<1	84	<1	<0.1%
6	LA	St Charles	<1	<1	<1	<0.1%
4	AL	Mobile	<1	<1	<1	<0.1%
<b>Total</b>			<b>8,434,467</b>	<b>13,125,343</b>	<b>13,408,620</b>	<b>100.0%</b>

## How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.5 shows how facilities in this industry managed PCs in 2006.

**Exhibit 6.5. Management of Priority Chemicals by NAICS 325181 Facilities (2006)**

Priority Chemical	Total PC Quantity* Reported	Quantity (pounds) of Priority Chemical							
		Disposal		Energy Recovery		Treatment		Recycling	
		Onsite	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite	Offsite
Hexachloro-1,3-butadiene	7,014,209	6	15	0	14	6,992,503	21,671	300,775	0
Anthracene	2,022,651	0	0	2,022,651	0	0	0	0	0
Hexachloroethane	1,611,218	52	0	109,840	0	1,488,097	13,230	3,343,049	0
1,2,4-trichlorobenzene	1,307,675	0	0	0	2	1,299,730	7,943	2,223	5,270
Hexachlorobenzene	644,768	4	0	315,977	2	327,090	1,696	0	0
Naphthalene	446,124	103	0	392,327	0	53,293	401	0	0
Pentachlorobenzene	328,698	0	0	0	0	327,750	949	0	0
Mercury and mercury compounds	15,997	302	15,695	0	0	0	0	185,990	165,781
Polychlorinated biphenyls	15,632	0	2	0	0	14,458	1,172	990	0
Lead and lead compounds	1,346	836	510	0	0	0	0	0	0
Pentachlorophenol	186	186	0	0	0	0	0	0	0
Dioxin and dioxin-like compounds**	80	20	1	0	0	53	7	0	0
Cadmium and cadmium compounds	36	36	0	0	0	0	0	0	0
<b>Total</b>	<b>13,408,621</b>	<b>1,545</b>	<b>16,222</b>	<b>2,840,794</b>	<b>18</b>	<b>10,502,974</b>	<b>47,068</b>	<b>3,833,027</b>	<b>171,051</b>

\*The recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are not recycled. In this Report, we primarily focus on non-recycled quantities of PCs (PC quantity) that offer the greatest opportunities for waste minimization. The term "PC Quantity", as used in this Report, refers to quantities of PCs that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

\*\* 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.

**Land Disposal:** Mercury and mercury compounds accounted for most of the approximately 18,000 pounds or 0.1 percent of the total quantity of this PC disposed of, primarily offsite. Facilities in this industry also used disposal for a significant portion of lead/lead compounds, pentachlorophenol, and cadmium/cadmium compounds.

**Energy Recovery:** Facilities used energy recovery, mostly onsite, to manage approximately 21 percent of this industry's PCs. In addition to 100 percent of the anthracene, facilities used energy recovery for significant portions of hexachlorobenzene and naphthalene.

**Treatment:** Facilities treated, primarily onsite, most of the hexachloro-1,3-butadiene, hexachloroethane, 1,2,4-trichlorobenzene, hexachlorobenzene, pentachlorobenzene, PCBs, and dioxins.

**Recycling:** Facilities in this industry recycled approximately 4 million pounds of PCs in 2006; hexachloroethane accounted for approximately 84 percent of the quantity recycled. Facilities also recycled significant quantities of mercury and mercury compounds and hexachloro-1,3-butadiene.

## Data Derived From Hazardous Waste Biennial Reports for NAICS 325181

In this section, we present data on which facilities submitted information to the BR system. 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. We present these data in order to provide another perspective on which PCs might be contained in hazardous wastes generated by facilities in this industry and to estimate their quantity.

Exhibit 6.6 shows the estimated quantity of PCs contained in hazardous wastes generated by facilities in this industry in 2005—derived from data reported by facilities on the BR. We estimate that facilities in this industry reported hazardous wastes containing approximately 2.3 million pounds of PCs. Hazardous wastes, primarily wastewaters containing mercury, accounted for approximately 58 percent of the estimated total quantity of PCs, while hazardous wastes, classified as non-wastewaters, accounted for most of the other quantities of PCs in the hazardous waste streams.

**Exhibit 6.6. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 325181 (2005)**

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Non-Wastewaters	Wastewaters	Total Quantity	
Mercury	17	292,256	1,059,395	1,351,651	57.7%
Hexachlorobutadiene	4	450,532	0	450,532	19.2%
Hexachloroethane	4	251,584	0	251,584	10.7%
Hexachlorobenzene	6	226,470	0	226,470	9.7%
Pentachlorobenzene	4	19,442	0	19,442	0.8%
1,2,4-Trichlorobenzene	4	13,863	0	13,863	0.6%
1,2,4,5-Tetrachlorobenzene	4	13,835	0	13,835	0.6%
Pentachlorophenol	1	6,831	0	6,831	0.3%
Naphthalene	3	5,781	0	5,781	0.2%
Lead	9	2,843	673	3,517	0.2%
Hexachlorocyclohexane, gamma- (Lindane)	2	<1	97	97	<0.1%
Phenanthrene	3	57	0	57	<0.1%
Dioxins/Furans	1	16	0	16	<0.1%
Cadmium	4	6	0	6	<0.1%
2,4,5-Trichlorophenol	1	<1	0	<1	<0.1%
Dibenzofuran	1	<1	0	<1	<0.1%
Polychlorinated biphenyls (PCBs)	1	<1	0	<1	<0.1%
<b>Total</b>	<b>19*</b>	<b>1,283,516</b>	<b>1,060,165</b>	<b>2,343,682</b>	<b>100.0%</b>

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

# 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 2006, 30 facilities in this industry reported approximately 11.4 million pounds of PCs, about the same quantity reported in 2005 and an increase of approximately 1.2 million pounds, compared to the quantity of PCs reported for 2004 (Exhibit 6.7). Five facilities accounted for approximately 70 percent of the total quantity of PCs for this industry, while twelve facilities accounted for approximately 98 percent of the PCs generated in this industry.

**Exhibit 6.7. National Generation of Priority Chemicals by Facilities in NAICS 331492 (2004–2006)**

TRI Reporting Year	2004	2005	2006
Total Quantity of Priority Chemicals (pounds)	10,213,273	11,027,809	11,410,674
Number of TRI Facilities in NAICS 331492 Reporting Priority Chemicals	31	33	30

For 2006, facilities in NAICS code 331492 reported 15 percent of the national total quantity of PCs generated and a significant portion of two PCs: approximately 30 percent of lead and lead compounds and 36 percent of cadmium and cadmium compounds (Exhibit 6.8):

**Exhibit 6.8. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 331492 Facilities (2004–2006) and Comparison to National Quantities (2006)**

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for this Industry (2006)	Percent of National Total Quantity of This PC (2006)
	2004	2005	2006		
Lead and lead compounds	9,782,045	10,662,347	11,065,070	82.5%	30.5%
Cadmium and cadmium compounds	430,646	364,161	344,408	2.6%	36.1%
Mercury and mercury compounds	582	1,301	1,197	0.0%	1.6%
Dioxin and dioxin-like compounds*	<1	<1	<1	<0.1%	<0.1%
<b>Total</b>	<b>10,213,273</b>	<b>11,027,808</b>	<b>11,410,674</b>	<b>85.1%</b>	<b>15.0%</b>

\* 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 2004, the quantity of this PC increased by approximately 969,000 pounds in 2005 and by 403,000 pounds in 2006. In addition to increased production at numerous facilities, other reasons for these increases include:

- A Pennsylvania facility that extracts zinc from steel mill dust melted into slag noted that the percentage of lead in the slag increased from 0.23% to 0.40%.
- A Missouri facility uses scrap lead (80% 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 California facility noted their increase in 2006 was due to a furnace re-build from which the contaminated waste refractory materials were sent to a hazardous waste landfill.

### Cadmium and cadmium compounds

- Since 2004, the quantity of this PC decreased by approximately 66,000 pounds in 2005 and by 20,000 pounds in 2006. For 2005, an Oklahoma facility reported a decrease of approximately 98,600 pounds. This facility extracts zinc and lead from electric arc furnace dusts. The cadmium in the waste (about 30% 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?

Since 2004, NAICS code 331492 facilities in five counties reported much of the total quantity of PCs generated in this industry, including approximately 77 percent for 2006 (Exhibit 6.9).

**Exhibit 6.9. Quantity of Priority Chemicals, by County, State, EPA Region (2004–2006)**

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 325181 (2006)
			2004	2005	2006	
4	AL	Pike	1,807,565	2,095,679	2,260,835	19.8%
9	CA	Los Angeles	1,328,378	1,894,894	2,000,070	17.5%
5	IN	Marion	1,836,937	2,058,059	1,955,323	17.1%
7	MO	Iron	1,379,460	1,691,895	1,499,007	13.1%
3	PA	Berks	1,488,858	1,018,089	1,071,347	9.4%
3	PA	Beaver	385,410	357,357	623,737	5.5%
5	IN	Delaware	719,046	640,176	525,238	4.6%
6	LA	East Baton Rouge	189,416	217,234	371,933	3.3%
6	TX	Collin	168,203	240,871	330,581	2.9%
6	OK	Washington	451,785	309,476	315,915	2.8%
5	MN	Dakota	241,758	270,306	260,770	2.3%
7	MO	Holt	64,698	72,200	75,289	0.7%
4	FL	Hillsborough	78,264	79,288	73,224	0.6%
<b>Total</b>			<b>10,139,778</b>	<b>10,945,525</b>	<b>11,363,270</b>	<b>99.6%</b>

## How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.10 shows how facilities in this industry managed PCs in 2006.

**Exhibit 6.10. Management of Priority Chemicals by NAICS 331492 Facilities (2006)**

Priority Chemical	Total PC Quantity* Reported	Quantity (pounds) of Priority Chemicals							
		Disposal		Energy Recovery		Treatment		Recycling	
		Onsite	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite	Offsite
Lead and lead compounds	11,065,070	2,999,461	8,065,609	0	0	0	0	107,972,675	27,743,756
Cadmium and cadmium compounds	344,408	39,542	304,866	0	0	0	0	0	544
Mercury and mercury compounds	1,197	0	1,197	0	0	0	0	101,495	0
Dioxin and dioxin-like compounds**	<1	<1	<1	0	0	<1	0	0	0
<b>Total</b>	<b>11,410,674</b>	<b>3,039,003</b>	<b>8,371,671</b>	<b>0</b>	<b>0</b>	<b>&lt;1</b>	<b>0</b>	<b>108,074,170</b>	<b>27,744,300</b>

\*The recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are not recycled. In this Report, we primarily focus on non-recycled quantities of PCs (PC quantity) that offer the greatest opportunities for waste minimization. The term "PC Quantity," as used in this Report, refers to quantities of PCs that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

\*\* 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.

**Land Disposal:** Facilities in this industry disposed of essentially all of the non-recycled quantities of lead, mercury, and cadmium and their compounds.

**Energy Recovery:** None reported.

**Treatment:** Facilities treated less than 1 pound of the dioxins generated in this industry.

**Recycling:** Facilities in this industry recycled approximately 136 million pounds of PCs in 2006. Lead and lead compounds accounted for approximately 99.9 percent of the total quantity recycled; 80 percent was recycled onsite.

## Data Derived From Hazardous Waste Biennial Reports for NAICS 331492

In this section, we present data on which facilities submitted information to the BR system. 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. We present these data in order to provide another perspective on which PCs might be contained in hazardous wastes generated by facilities in this industry and to estimate their quantity.

Exhibit 6.11 shows the estimated quantity of PCs contained in hazardous wastes generated by facilities in this industry in 2005—derived from data reported by facilities on the BR. We estimate that facilities in this industry reported hazardous wastes containing approximately 37 million pounds of PCs. Lead accounted for more than 99 percent of PCs generated in these hazardous waste streams.

**Exhibit 6.11. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 331492 (2005)**

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Non-Wastewaters	Wastewaters	Total Quantity	
Lead	27	11,048,489	25,797,146	36,845,636	99.9%
Cadmium	17	20,723	110	20,833	0.1%
Pyrene	1	612	0	612	<0.1%
Phenanthrene	1	371	0	371	<0.1%
Naphthalene	1	232	0	232	<0.1%
Mercury	3	41	0	41	<0.1%
Benzo(a)anthracene*	1	13	0	13	<0.1%
<b>Total</b>	<b>29**</b>	<b>11,070,481</b>	<b>25,797,256</b>	<b>36,867,738</b>	<b>100.0%</b>

\* Benzo(a)anthracene is a chemical in the Polycyclic aromatic compounds group in TRI.

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

# 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 2006, 87 facilities in this industry reported generating approximately 10.1 million pounds of PCs, an increase of approximately 838,000 pounds compared to the quantity generated in 2005 and an increase of approximately 278,000 pounds, compared to the quantity of PCs generated for 2004 (Exhibit 6.12). One facility accounted for approximately 11 percent of the total quantity of PCs generated for this industry, while 27 facilities that reported between 100,000 to 1 million pounds of PCs, accounted for 82 percent of the total quantity of PCs generated for this industry.

**Exhibit 6.12. National Generation of Priority Chemicals by Facilities in NAICS 331111 (2004–2006)**

TRI Reporting Year	2004	2005	2006
Total Quantity of Priority Chemicals (pounds)	9,830,019	9,270,225	10,108,076
Number of TRI Facilities in NAICS 331111 Reporting Priority Chemicals	85	84	87

For 2006, facilities in NAICS code 331111 accounted for approximately 13 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 12 percent of mercury and mercury compounds (Exhibit 6.13).

**Exhibit 6.13. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 331111 Facilities (2004–2006) and Comparison to National Quantities (2006)**

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for this Industry (2006)	Percent of National Total Quantity of This PC (2006)
	2004	2005	2006		
Lead and lead compounds	9,777,850	9,153,830	10,032,736	99.3%	27.7%
Cadmium and cadmium compounds	30,747	36,941	46,076	0.5%	4.8%
Naphthalene	4,729	13,326	11,880	0.1%	0.1%
Mercury and mercury compounds	10,337	9,227	9,201	0.1%	12.4%
Polychlorinated biphenyls	3,110	3,018	4,480	<0.1%	4.1%
Polycyclic aromatic compounds	2,752	53,264	2,974	<0.1%	<0.1%
Phenanthrene	300	422	447	<0.1%	0.1%
Anthracene	122	144	177	<0.1%	0.0%
Dibenzofuran	70	35	86	<0.1%	0.1%
Benzo(g,h,i)perylene	2	17	19	<0.1%	<0.1%
Dioxin and dioxin-like compounds*	<1	<1	<1	<0.1%	<0.1%
<b>Total</b>	<b>9,830,019</b>	<b>9,270,225</b>	<b>10,108,076</b>	<b>100.0%</b>	<b>13.3%</b>

\* 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 PCs generated by two of the PCs reported by facilities in NAICS code 331111 include:

**Lead and lead compounds:** Compared to quantities reported for 2004 and 2005, the quantity of lead and lead compounds increased by approximately 255,000 pounds and 879,000 pounds, respectively, in 2006. Numerous facilities contributed to the increased quantity in 2006 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.

**Polycyclic aromatic compounds:** For 2005, the quantity increased by approximately 53,000 pounds when a Pennsylvania facility reported a one-time disposal of accumulated sludge and also reported PACs in flaring for the first time.

## Where Did Facilities in This Industry Generate Priority Chemicals?

For 2006, facilities in 24 counties reported approximately 90 percent of the total quantity of PCs generated for this industry; twelve of the counties are in EPA Region 5 (Exhibit 6.14). For 2006, facilities in these 24 counties reported an increase of approximately 744,000 pounds, compared to the quantity reported for 2004 and an increase of approximately 1.2 million pounds, compared to the quantity reported for 2005. From 2004 to 2005, the quantity of PCs increased in 19 of these counties.

**Exhibit 6.14. Quantity (90 Percent of Total) of Priority Chemicals, by County, State, EPA Region (2004–2006)**

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 331111 (2006)
			2004	2005	2006	
4	AL	Mobile	933,159	1,019,468	1,078,392	10.7%
7	IA	Muscatine	835,536	865,791	974,958	9.6%
5	IN	Whitley	657,366	726,474	924,424	9.1%
7	NE	Stanton	629,570	301,767	564,467	5.6%
8	UT	Box Elder	691,506	730,601	510,533	5.1%
10	OR	Yamhill	348,153	404,162	458,349	4.5%
4	NC	Hertford	513,886	344,755	457,556	4.5%
5	OH	Stark	479,782	438,202	443,328	4.4%
6	AR	Mississippi	404,437	291,886	435,690	4.3%
3	VA	Roanoke (City)	346,965	349,325	362,430	3.6%
5	IN	De Kalb	302,236	266,996	304,342	3.0%
5	IL	Madison	246,286	221,523	291,116	2.9%
5	IN	Montgomery	255,546	292,625	289,366	2.9%
5	IN	Hendricks	179,605	186,759	288,781	2.9%
5	OH	Marion	0	0	285,606	2.8%
5	IL	Peoria	376,043	235,063	281,067	2.8%
5	MI	Wayne	323,247	463,748	275,061	2.7%
4	AL	Tuscaloosa	275,425	225,588	227,491	2.3%
6	LA	St John The Baptist	194,352	164,719	193,142	1.9%
5	IL	Whiteside	170,032	160,201	151,292	1.5%
4	TN	Madison	84,858	106,192	150,071	1.5%
5	OH	Richland	90,000	97,900	111,178	1.1%
5	OH	Lorain	84,066	90,027	107,031	1.1%
<b>Total</b>			<b>8,422,055</b>	<b>7,983,774</b>	<b>9,165,671</b>	<b>90.7%</b>

# How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.15 shows how facilities in this industry managed PCs in 2006.

**Exhibit 6.15. Management of Priority Chemicals by NAICS 331111 Facilities (2006)**

Priority Chemical	Total PC Quantity* Reported	Quantity (pounds) of Priority Chemical							
		Disposal		Energy Recovery		Treatment		Recycling	
		Onsite	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite	Offsite
Lead and lead compounds	10,032,736	440,845	9,591,891	0	0	0	0	574,793	11,412,341
Cadmium and cadmium compounds	46,076	14,737	31,339	0	0	0	0	0	88,629
Naphthalene	11,880	0	607	0	3	8,990	2,280	11,000	47,000
Mercury and mercury compounds	9,201	126	9,075	0	0	0	0	52	3,949
Polychlorinated biphenyls	4,480	2,783	1,697	0	0	0	0	0	0
Polycyclic aromatic compounds	2,974	0	420	0	0	2,440	114	5,677	52,000
Phenanthrene	447	0	280	0	0	0	167	310	31,000
Anthracene	177	0	108	0	0	0	69	160	9,100
Dibenzofuran	86	0	50	0	0	0	36	0	0
Benzo(g,h,i)perylene	19	0	19	0	0	0	0	66	7,200
Dioxin and dioxin-like compounds**	<1	<1	<1	0	0	0	<1	0	0
<b>Total</b>	<b>10,108,076</b>	<b>458,492</b>	<b>9,635,486</b>	<b>0</b>	<b>3</b>	<b>11,430</b>	<b>2,666</b>	<b>592,058</b>	<b>11,651,220</b>

\* The recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are not recycled. In this Report, we primarily focus on non-recycled quantities of PCs (PC quantity) that offer the greatest opportunities for waste minimization. The term "PC Quantity", as used in this Report, refers to quantities of PCs that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

\*\* 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.

**Land Disposal:** Facilities disposed of nearly all (99.9%) of this industry's total non-recycled PC quantity, mostly offsite. Lead 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 three pounds of naphthalene.

**Treatment:** Facilities treated less than 0.1 percent of this industry's total quantity of PCs, including a large percentage of the naphthalene and the polycyclic aromatic compounds.

**Recycling:** Facilities in this industry recycled approximately 12.2 million pounds of PCs in 2006; lead and lead compounds accounted for approximately 98 percent of the quantity recycled. Facilities also reported recycling significant quantities of other PCs, including cadmium and cadmium compounds, naphthalene, polycyclic aromatic compounds, phenanthrene, anthracene, benzo(g,h,i)perylene, and mercury and mercury compounds.

## Data Derived From Hazardous Waste Biennial Reports for NAICS 331111

In this section, we present data on which facilities submitted information to the BR system. 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. We present these data in order to provide another perspective on which PCs might be contained in hazardous wastes generated by facilities in this industry and to estimate their quantity.

Exhibit 6.16 shows the estimated quantity of PCs contained in hazardous wastes generated by facilities in this industry in 2005—derived from data reported by facilities on the BR. We estimate that facilities in this industry reported hazardous wastes containing approximately 64.2 million pounds of PCs. Hazardous wastes, classified as non-wastewaters, contained 99.9 percent of the PCs. Lead accounted for approximately 97 percent of the PCs in the hazardous waste streams.

**Exhibit 6.16. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 331111 (2005)\***

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Non-wastewaters	Wastewaters	Total Quantity	
Lead	86	61,924,280	72,279	61,996,559	96.5%
Cadmium	88	2,005,140	1,483	2,006,623	3.1%
Mercury	25	93,431	<1	93,432	0.1%
Naphthalene	5	77,583	0	77,583	0.1%
Phenanthrene	4	34,468	0	34,468	0.1%
Acenaphthylene	4	20,255	0	20,255	<0.1%
Hexachlorocyclohexane, gamma- (Lindane)	1	<1	0	<1	<0.1%
<b>Polycyclic aromatic compound (PAC) Group in the Toxics Release Inventory (TRI)</b>					<b>&lt;0.1%</b>
Indeno[1,2,3-cd]pyrene	2	3,543	0	3,543	<0.1%
Benzo(a)pyrene	4	2,446	0	2,446	<0.1%
Benzo(a)anthracene	4	2,274	0	2,274	<0.1%
Benzo(b)fluoranthene	4	1,572	0	1,572	<0.1%
Benzo(k)fluoranthene	4	1,572	0	1,572	<0.1%
Dibenzo(a,h)anthracene	2	789	0	789	<0.1%
<b>Total</b>	<b>95 **</b>	<b>64,167,354</b>	<b>73,763</b>	<b>64,241,117</b>	<b>100.0%</b>

\*Exhibit includes rounding error.

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

# Carbon and Graphite Product Manufacturing (NAICS Code 335991)

## Description of NAICS Code

Establishments primarily engaged in manufacturing carbon, graphite, and metal-graphite brushes and brush stock; carbon or graphite electrodes for thermal and electrolytic uses; carbon and graphite fibers; and other carbon, graphite, and metal-graphite products.  
(Source: U.S. Census Bureau)

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

For 2006, 21 facilities in this industry reported approximately 3.3 million pounds of PCs, a decrease of approximately 1.4 million pounds compared to the quantity generated in 2005 and a decrease of approximately 824,000 pounds, compared to the quantity of PCs generated for 2004 (Exhibit 6.17). Five facilities accounted for approximately 94 percent of the total quantity of PCs generated for this industry.

**Exhibit 6.17. National Generation of Priority Chemicals by Facilities in NAICS 335991 (2004–2006)**

TRI Reporting Year	2004	2005	2006
Total Quantity of Priority Chemicals (pounds)	4,115,195	4,651,306	3,291,125
Number of TRI Facilities in NAICS 335991 Reporting Priority Chemicals	23	22	21

For 2006, facilities in NAICS code 335991 reported approximately 4 percent of the national total quantity of PCs generated, including a significant portion of two PCs: approximately 36 percent of polycyclic aromatic compounds and 50 percent of benzo(g,h,i)perylene (Exhibit 6.18).

From 2004 to 2005, the quantity of PACs increased by approximately 511,000 pounds and decreased by approximately 1.3 million pounds in 2006. A facility located in North Carolina accounted for much of this fluctuation, reporting an increase of approximately 512,000 pounds from 2004–2005, followed by a decrease of approximately 690,000 pounds for 2006. The facility attributed the increase/decrease to changes in the composition of the coal tar pitch used as feedstock. Another facility, located in Tennessee, reported a decrease of approximately 967,000 pounds from 2005 to 2006. In 2006, this facility shut down most process lines and may shut down entirely.

**Exhibit 6.18. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 335991 Facilities (2004–2006) and Comparison to National Quantities (2006)**

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for this Industry (2006)	Percent of National Total Quantity of This PC (2006)
	2004	2005	2006		
Polycyclic aromatic compounds	3,709,574	4,220,588	2,899,886	88.1%	36.4%
Benzo(g,h,i)perylene	402,731	427,126	388,130	11.8%	49.5%
Phenanthrene	1,490	2,153	1,607	<0.1%	0.2%
Lead and lead compounds	994	1,267	1,450	<0.1%	<0.1%
Naphthalene	405	172	52	<0.1%	<0.1%
<b>Total</b>	<b>4,115,195</b>	<b>4,651,306</b>	<b>3,291,125</b>	<b>100.0%</b>	<b>4.3%</b>

## Where Did Facilities in This Industry Generate Priority Chemicals?

Since 2004, NAICS code 335991 facilities in five counties, located in EPA Regions 4 and 6, reported nearly all of the PCs generated in this industry, including approximately 94 percent for 2006 (Exhibit 6.19).

**Exhibit 6.19. Quantity of Priority Chemicals, by County, State, EPA Region (2004–2006)**

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 335991 (2006)
			2004	2005	2006	
6	AR	Pope	674,556	628,391	870,097	26.4%
4	TN	Maury	1,976,881	1,924,516	854,422	26.0%
4	KY	Fulton	481,265	524,952	543,739	16.5%
6	AR	Franklin	364,642	371,159	462,841	14.1%
4	NC	Burke	502,029	1,013,052	365,239	11.1%
4	TN	Lawrence	34,190	67,774	86,806	2.6%
5	OH	Seneca	38,107	45,587	39,186	1.2%
1	ME	York	319	2,423	22,275	0.7%
3	PA	Elk	16,985	33,907	17,847	0.5%
3	PA	Potter	8,115	9,063	14,651	0.4%
3	WV	Harrison	4,448	19,936	4,360	0.1%
3	PA	Jefferson	2,195	1,777	2,487	0.1%
4	SC	Dorchester	3,029	2,585	2,424	0.1%
4	NC	Harnett	1,086	1,086	1,361	0.0%
5	WI	Waukesha	590	942	1,168	0.0%
7	IA	Lee	5,522	3,080	899	0.0%
5	OH	Cuyahoga	357	415	727	0.0%
3	PA	Monroe	876	660	595	0.0%
3	VA	Prince Edward	1	1	1	0.0%
<b>Total</b>			<b>4,115,193</b>	<b>4,651,306</b>	<b>3,291,125</b>	<b>100.0%</b>

## How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.20 shows how facilities in this industry managed PCs in 2006.

**Exhibit 6.20. Management of Priority Chemicals by NAICS 335991 Facilities (2006)**

Priority Chemical	Total PC Quantity* Reported	Quantity (pounds) of Priority Chemical							
		Disposal		Energy Recovery		Treatment		Recycling	
		Onsite	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite	Offsite
Polycyclic aromatic compounds	2,899,886	12,841	34,402	1,091,272	281	1,749,774	11,316	203,597	885
Benzo(g,h,i)perylene	388,130	9,005	1,849	289,372	48	87,809	46	2	378
Phenanthrene	1,607	0	1,607	0	0	0	0	20,323	0
Lead and lead compounds	1,450	0	1,450	0	0	0	0	785	4,985
Naphthalene	52	0	51	0	0	0	1	0	0
<b>Total</b>	<b>3,291,125</b>	<b>21,846</b>	<b>39,359</b>	<b>1,380,644</b>	<b>329</b>	<b>1,837,583</b>	<b>11,363</b>	<b>224,707</b>	<b>6,248</b>

\*Note: The recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are not recycled. In this Report, we primarily focus on non-recycled quantities of PCs (PC quantity) that offer the greatest opportunities for waste minimization. The term "PC Quantity", as used in this Report, refers to quantities of PCs that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

**Land Disposal:** Facilities disposed of approximately 2 percent of this industry’s total quantity of PCs. Facilities in this industry used disposal to manage each of the PCs, including virtually all of the phenanthrene, lead and lead compounds, and naphthalene.

**Energy Recovery:** Facilities used energy recovery, mostly onsite, to manage approximately 42 percent of this industry’s PCs. In addition to approximately 75 percent of the benzo(g,h,i)perylene, facilities used energy recovery for approximately 38 percent of polycyclic aromatic compounds.

**Treatment:** Facilities treated, primarily onsite, approximately 56 percent of this industry’s PCs. Polycyclic aromatic compounds accounted for approximately 95 percent of the quantity treated.

**Recycling:** Facilities in this industry recycled approximately 231,000 pounds of PCs in 2006; polycyclic aromatic compounds accounted for approximately 89 percent of the quantity recycled.

## Data Derived From Hazardous Waste Biennial Reports for NAICS 335991

In this section, we present data on which facilities submitted information to the BR system. 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. We present these data in order to provide another perspective on which PCs might be contained in hazardous wastes generated by facilities in this industry and to estimate their quantity.

Exhibit 6.21 shows the estimated quantity of PCs contained in hazardous wastes generated by facilities in this industry in 2005—derived from data reported by facilities on the BR. We estimate that facilities in this industry reported hazardous wastes containing approximately 2,000 pounds of PCs, all of which were non-wastewaters.

**Exhibit 6.21. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 335991 (2005)**

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Non-wastewaters	Wastewaters	Total Quantity	
Mercury	2	972	0	972	51.1%
Lead	3	906	0	906	47.6%
Cadmium	1	26	0	26	1.4%
<b>Total</b>	<b>6</b>	<b>1,904</b>	<b>0</b>	<b>1,904</b>	<b>100.0%</b>

# Primary Aluminum Production (NAICS Code 331312)

## Description of NAICS Code

Establishments primarily engaged in (1) making aluminum from alumina and/or (2) making aluminum from alumina and rolling, drawing, extruding, or casting the aluminum they make into primary forms (e.g., bar, billet, ingot, plate, rod, sheet, strip). Establishments in this industry may make primary aluminum or aluminum-based alloys from alumina. (Source: U.S. Census Bureau)

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

For 2006, 15 facilities in this industry generated approximately 3.2 million pounds of PCs, an increase of approximately 260,000 pounds compared to the quantity generated in 2004 and an increase of approximately 477,000 pounds, compared to the quantity of PCs generated for 2005 (Exhibit 6.22). One facility accounted for approximately 90 percent of the total quantity of PCs generated for this industry.

**Exhibit 6.22. National Generation of Priority Chemicals by Facilities in NAICS 331312 (2004–2006)**

TRI Reporting Year	2004	2005	2006
Total Quantity of Priority Chemicals (pounds)	2,974,060	2,756,294	3,233,397
Number of TRI Facilities in NAICS 331312 Reporting Priority Chemicals	18	17	15

For 2006, facilities in NAICS code 331312 reported approximately 4 percent of the national total quantity of PCs and a significant portion of several PCs (Exhibit 6.23), including approximately:

- 50% of phenanthrene
- 35% of benzo(g,h,i)perylene
- 28% of polycyclic aromatic compounds

**Exhibit 6.23. Trend for Quantities of Individual Priority Chemicals Reported by NAICS 331312 Facilities (2004–2006) and Comparison to National Quantities (2006)**

Priority Chemical	Quantity (pounds)			Percent of Total PC Quantity for this Industry (2006)	Percent of National Total Quantity of This PC (2006)
	2004	2005	2006		
Polycyclic aromatic compounds	1,559,987	1,341,676	2,264,506	70.0%	28.4%
Phenanthrene	804,914	759,081	386,800	12.0%	49.8%
Benzo(g,h,i)perylene	15,016	154,918	274,014	8.5%	34.9%
Anthracene	292,696	276,200	141,100	4.4%	5.9%
Lead and lead compounds	102,811	103,052	101,170	3.1%	0.3%
Naphthalene	198,170	120,772	65,314	2.0%	0.5%
Mercury and mercury compounds	462	450	488	<0.1%	0.7%
Dioxin and dioxin-like compounds*	5	5	6	<0.1%	1.1%
Polychlorinated biphenyls	0	140	0	0.0%	0.0%
<b>Total</b>	<b>2,974,060</b>	<b>2,756,294</b>	<b>3,233,397</b>	<b>100.0%</b>	<b>4.3%</b>

\* 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.

Since 2004, a facility located in Warrick County, Indiana accounted for most of the naphthalene reported by NAICS code 331312 facilities. For 2005 and 2006, this facility reported decreases of approximately 77,000 pounds and 55,000 pounds, respectively. The facility attributed the reduction in naphthalene to a reduction in production and thus the reduced use of coatings containing naphthalene.

In addition, a facility located in Hancock County, Kentucky accounted for much of the increase/decrease in quantities of several other PCs (anthracene, benzo(g,h,i)perylene, polycyclic aromatic compounds, and phenanthrene). This facility uses coal tar pitch and coke to produce carbon rods (anodes) for aluminum smelting. The PCs are contained in the coal tar pitch and correlate with production of carbon rods. The quantity of PCs is also affected by the concentration of these chemicals in the coal tar pitch. Specific details regarding the quantities of several of the PCs reported by this facility include:

**Anthracene:** For 2006, the total national quantity of anthracene decreased by approximately 135,000 pounds; this facility reported a decrease of approximately 135,000 pounds.

**Benzo(g,h,i)perylene:** For 2005 and 2006, the total national quantity of benzo(g,h,i)perylene increased by approximately 140,000 pounds and 119,000 pounds, respectively. This facility reported increases of approximately 138,000 pounds and 122,000 pounds, respectively.

**Polycyclic aromatic compounds:** For 2006, the total national quantity of polycyclic aromatic hydrocarbons increased by approximately 923,000 pounds; this facility reported an increase of approximately 958,000 pounds.

**Phenanthrene:** For 2006, the total national quantity of phenanthrene decreased by approximately 372,000 pounds; this facility reported a decrease of approximately 371,000 pounds.

## Where Did Facilities in This Industry Generate Priority Chemicals?

Since 2004, NAICS code 331312 facilities were located in 14 counties, with two counties, located in EPA Regions 4 and 5, accounting for approximately 95 percent of the total quantity of PCs generated for this industry. A facility located in Hancock County, Kentucky accounted for an average of approximately 86 percent of the total quantity of PCs in this industry, including approximately 90 percent for 2006 (Exhibit 6.24).

**Exhibit 6.24. Quantity of Priority Chemicals, by County, State, EPA Region (2004–2006)**

EPA Region	State	County	Quantity (pounds) of PCs			Percent of Total PC Quantity for NAICS 331312 (2006)
			2004	2005	2006	
4	KY	Hancock	2,486,005	2,343,472	2,917,656	90.2%
5	IN	Warrick	287,307	211,748	155,897	4.8%
2	NY	St Lawrence	84,135	88,153	73,307	2.3%
10	WA	Chelan	13,612	52,894	47,194	1.5%
6	TX	Milam	42,052	19,504	18,717	0.6%
4	SC	Berkeley	13,587	13,949	12,676	0.4%
4	TN	Blount	3,782	3,516	3,797	0.1%
8	MT	Flathead	1,941	2,973	3,746	0.1%
3	WV	Jackson	306	311	292	<0.1%
7	MO	New Madrid	64	77	59	<0.1%
10	WA	Whatcom	10,007	49	34	<0.1%
5	OH	Monroe	154	2	18	<0.1%
3	MD	Frederick	19,560	19,540	5	<0.1%
4	KY	Henderson	2	3	<1	<0.1%
<b>Total</b>			<b>2,962,512</b>	<b>2,756,192</b>	<b>3,233,397</b>	<b>100.0%</b>

## How Did Facilities in This Industry Manage Priority Chemicals?

Exhibit 6.25 shows how facilities in this industry managed PCs in 2006.

**Exhibit 6.25. Management of Priority Chemicals by NAICS 331312 Facilities (2006)**

Priority Chemical	Total PC Quantity* Reported	Quantity (pounds) of Priority Chemical							
		Disposal		Energy Recovery		Treatment		Recycling	
		Onsite	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite	Offsite
Polycyclic aromatic compounds	2,264,506	2,781	52,666	0	0	2,207,018	2,040	158,889	0
Phenanthrene	386,800	0	2,800	0	0	384,000	0	0	0
Benzo(g,h,i)perylene	274,014	355	6,846	0	0	266,548	265	21,903	0
Anthracene	141,100	0	1,100	0	0	140,000	0	0	0
Lead and lead compounds	101,170	77,813	23,357	0	0	0	0	4,445	30,064
Naphthalene	65,314	0	0	58,718	183	6,401	12	4,264	0
Mercury and mercury compounds	488	387	101	0	0	0	0	0	0
Dioxin and dioxin-like compounds**	6	0	0	0	0	6	0	0	0
<b>Total</b>	<b>3,233,397</b>	<b>81,337</b>	<b>86,869</b>	<b>58,718</b>	<b>183</b>	<b>3,003,973</b>	<b>2,317</b>	<b>189,501</b>	<b>30,064</b>

\*The recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are not recycled. In this Report, we primarily focus on non-recycled quantities of PCs (PC quantity) that offer the greatest opportunities for waste minimization. The term "PC Quantity", as used in this Report, refers to quantities of PCs that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

\*\* 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.

**Land Disposal:** Facilities disposed of only approximately 5 percent of this industry's total non-recycled quantity of PCs generated. Facilities in this industry used disposal to manage a portion of 6 of the 8 PCs, including virtually all of the lead/lead compounds, and mercury/mercury compounds.

**Energy Recovery:** Facilities used energy recovery, mostly onsite, to manage 100 percent of the naphthalene, representing approximately 2 percent of this industry's total non-recycled quantity of PCs generated.

**Treatment:** Facilities treated (primarily onsite) approximately 93 percent of this industry's total non-recycled quantity of PCs generated, including most of the polycyclic aromatic compounds, phenanthrene, benzo(g,h,i)perylene, and anthracene.

**Recycling:** Facilities in this industry recycled approximately 220,000 pounds of PCs in 2006; polycyclic aromatic compounds accounted for approximately 72 percent of the quantity recycled.

## Data Derived From Hazardous Waste Biennial Reports for NAICS 331312

In this section, we present data on which facilities submitted information to the BR system. 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. We present these data in order to provide another perspective on which PCs might be contained in hazardous wastes generated by facilities in this industry and to estimate their quantity.

Exhibit 6.26 shows the estimated quantity of PCs contained in hazardous wastes generated by facilities in this industry in 2005—derived from data reported by facilities on the BR. We estimate that facilities in this industry reported hazardous wastes containing approximately 359,000 pounds of PCs. Waste streams classified as non-wastewaters contained approximately 95 percent of the PCs. Acenaphthene accounted for approximately 77 percent of the total quantity of PCs contained in the hazardous waste streams.

**Exhibit 6.26. Estimated Quantity of Priority Chemicals Contained in Primary Generation Hazardous Waste Reported by Facilities in NAICS 331312 (2005)**

Priority Chemical	Number of Facilities	Priority Chemical Quantity (pounds)			Percent of Total Quantity
		Non-Wastewaters	Wastewaters	Total Quantity	
Acenaphthene	13	274,792	0	274,792	76.6%
Lead	8	1,508	17,669	19,177	5.3%
Polycyclic aromatic compound (PAC): Benzo(b)fluoranthene	13	12,169	0	12,169	3.4%
Polycyclic aromatic compound (PAC): Benzo(k)fluoranthene	13	12,169	0	12,169	3.4%
Pyrene	13	7,851	0	7,851	2.2%
Polycyclic aromatic compound (PAC): Benzo(a)pyrene	13	7,066	0	7,066	2.0%
Polycyclic aromatic compound (PAC): Benzo(a)anthracene	13	6,281	0	6,281	1.8%
Benzo(g,h,i)perylene	13	5,496	0	5,496	1.5%
Phenanthrene	13	5,496	0	5,496	1.5%
Polycyclic aromatic compound (PAC): Indeno[1,2,3-cd]pyrene	13	4,711	0	4,711	1.3%
Polycyclic aromatic compound (PAC): Dibenz(a,h)anthracene	13	1,884	0	1,884	0.5%
Anthracene	13	1,256	0	1,256	0.4%
Mercury	5	224	0	224	0.1%
Cadmium	4	22	0	22	0.0%
<b>Total</b>	<b>13*</b>	<b>340,925</b>	<b>17,669</b>	<b>358,594</b>	<b>100.0%</b>

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