

## Trends Analysis for NPEP Priority Chemicals Reportable to TRI

### Anthracene

#### Chemical Information

**CAS Number** - 120-12-7

**Alternate Names** - paranaphthalene, anthracin, anthracene

**General Uses** - This chemical is used to make dyes, plastics and pesticides. It has been used to make smoke screens and scintillation counter crystals.

**Potential Hazards** - This chemical may cause irritation of the eyes and respiratory tract. It may also irritate the gastrointestinal tract if swallowed. It is combustible.

#### Toxics Release Inventory (TRI) Data

##### *National-Level Chemical Information*

Exhibit 21 presents the total NPEP Priority Chemical quantity (pounds) of anthracene in 1998 to 2001. Anthracene made up 0.5 percent of the total NPEP Priority Chemical quantity reported in 2001. There has been approximately a 6 percent increase in the quantity of anthracene reported from 1998 to 2001.

**Exhibit 21. National-Level Information for Anthracene**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
ANTHRACENE	333,856	428,283	511,076	352,788	0.5	5.7

##### *EPA Region Information*

Exhibit 22 represents the quantity (pounds) of anthracene for each EPA Region in 1998 to 2001. The majority of facilities with NPEP Priority Chemical quantities of anthracene were located in Regions 5 and 6.

**Exhibit 22. Regional-Level Information for Anthracene**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
6	213,978	277,489	378,201	288,925	81.9	35.0
5	61,671	92,496	125,846	58,861	16.7	-4.6
3	2,938	7,643	2,692	2,584	0.7	-12.0
4	51,470	50,591	4,307	2,033	0.6	-96.1
8	74	63	30	380	0.1	413.5
9	3,720	0	0	0	0.0	-100.0
10	5	1	0	5	0.0	0.0
<b>TOTAL</b>	<b>333,856</b>	<b>428,283</b>	<b>511,076</b>	<b>352,788</b>	<b>100</b>	

### State Information

As shown in Exhibit 23, between 1998 and 2001, the facilities with largest NPEP Priority Chemical quantity of anthracene were located in Texas and Ohio.

**Exhibit 23. State-Level Information for Anthracene**

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Texas	197,288	263,660	373,863	275,398	78.1	39.6
Ohio	41,089	75,670	110,871	56,393	16.0	37.2
Louisiana	16,690	13,829	4,262	13,466	3.8	-19.3
Illinois	18,825	16,355	14,963	2,466	0.7	-86.9
Pennsylvania	1,738	6,343	1,982	1,434	0.4	-17.5
Alabama	1,005	1,505	3,466	1,398	0.4	39.1
West Virginia	1,200	1,300	710	1,145	0.3	-4.6
Kentucky	50,462	48,815	817	554	0.2	-98.9
Montana	0	0	0	269	0.1	-----
Utah	74	63	30	111	0.0	50.0
North Carolina	3	271	24	81	0.0	2,600.0
Arkansas	0	0	76	61	0.0	-----
Delaware	0	0	0	5	0.0	-----
Washington	0	0	0	5	0.0	-----
Minnesota	0	0	3	2	0.0	-----
California	3,720	0	0	0	0.0	-100.0
Indiana	1,757	471	9	0	0.0	-100.0
Oregon	5	1	0	0	0.0	-100.0
<b>TOTAL</b>	<b>333,856</b>	<b>428,283</b>	<b>511,076</b>	<b>352,788</b>	<b>100</b>	

### Industry Sector (SIC Code) Information

Exhibit 24 shows the national NPEP Priority Chemical quantity (pounds) of anthracene by industry sector (1998 to 2001). The facilities reporting the highest quantities of anthracene have listed their primary SIC codes as 2812 (Alkalies and chlorine), 2869 (Industrial organic chemicals, nec), and 2865(Cyclic crudes and intermediates).

**Exhibit 24. Industry Sector-Level Information for Anthracene**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2812	Alkalies and chlorine	22,000	112,000	93,600	168,814	47.9	667.3
2869	Industrial organic chemicals, nec	187,643	208,449	203,809	96,747	27.4	-48.4
2865	Cyclic crudes and intermediates	61,144	95,555	131,730	62,873	17.8	2.8
2819	Industrial inorganic chemicals, nec	0	0	80,504	18,968	5.4	-----
2911	Petroleum refining	54,797	5,818	1,115	4,961	1.4	-90.9
3334	Primary Aluminum	0	0	0	269	0.1	-----
2491	Wood Preserving	3	271	24	81	0.0	2,600.0
3312	Blast furnaces and steel mills	2,713	5,682	292	74	0.0	-97.3
2822	Synthetic rubber	0	37	2	1	0.0	-----
2821	Plastics materials and resins	79	0	0	0	0.0	-100.0
4925	Gas production and/or distribution	1,757	471	0	0	0.0	-100.0
9511	Air, water and solid waste mgmt.	3,720	0	0	0	0.0	-100.0
<b>TOTAL</b>		<b>333,856</b>	<b>428,283</b>	<b>511,076</b>	<b>352,788</b>	<b>100.0</b>	

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain anthracene reported in 1997, 1999 and 2001. The waste codes associated with anthracene are—F032, F034, F037, F039, K015, K035, K049, K051, and K088. The quantity of the hazardous waste stream(s) that may contain anthracene decreased by approximately 83 percent from 1997 to 2001.

**Exhibit 25. National-Level Information for Anthracene**

Chemical	1997	1999	2001	% change
Anthracene	15,245,620,414	21,752,307,555	2,640,825,851	-82.7

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) for each EPA region reported in 1997, 1999 and 2001 that may contain anthracene. Regions 2 and 6 had the largest quantity of hazardous waste stream(s) that may contain anthracene in 2001.

**Exhibit 26. Regional-Level Information for Anthracene**

<b>Region</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% of Total BR Qty (2001)</b>	<b>% Change (1997-2001)</b>
1	94,128	2,964,193	13,477	0.0	-85.7
2	111,092,947	654,846,389	1,009,857,084	38.2	809.0
3	83,891,412	64,634,187	70,708,997	2.7	-15.7
4	1,708,167,594	566,239,082	203,159,397	7.7	-88.1
5	929,205,143	921,229,771	303,821,965	11.5	-67.3
6	590,994,454	1,188,250,782	826,436,403	31.3	39.8
7	252,974,435	210,582,657	35,419,425	1.3	-86.0
8	48,625,150	52,731,965	19,001,758	0.7	-60.9
9	11,520,468,967	18,086,412,179	148,623,542	5.6	-98.7
10	106,184	4,416,351	23,783,802	0.9	22298.6
<b>TOTAL</b>	<b>15,245,620,414</b>	<b>21,752,307,555</b>	<b>2,640,825,851</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain anthracene for each state that had over 1 percent of the 2001 total quantity. New York and Arkansas accounted for approximately 55 percent of the total quantity for 2001.

**Exhibit 27. State-Level Information for Anthracene**

<b>State</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% of Total BR Qty (2001)</b>	<b>% Change (1997-2001)</b>
NY	54,621,261	451,002,625	909,298,705	36.5	1,564.7
AR	80,920,727	744,549,379	467,653,931	18.8	477.9
TX	341,364,848	315,933,622	217,451,809	8.7	-36.3
IN	756,841,879	704,785,967	147,558,101	5.9	-80.5
LA	150,940,894	109,828,176	131,012,906	5.3	-13.2
NJ	54,083,184	187,894,277	100,150,736	4.0	85.2
AZ	141,720	101,226,407	93,801,470	3.8	66,087.9
AL	106,165,442	131,580,790	83,294,312	3.3	-21.5
OH	39,878,422	121,187,138	75,989,554	3.1	90.6
IL	85,009,029	63,984,521	65,102,361	2.6	-23.4
CA	11,514,785,315	17,984,869,684	54,723,539	2.2	-99.5
MS	52,415,025	58,376,669	49,797,562	2.0	-5.0
VA	39,627,736	32,213,884	48,544,563	1.9	22.5
KY	42,646,361	52,341,309	45,541,178	1.8	6.8

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain anthracene for each industry sector (North American Industry Classification System (NAICS code)) that accounted for more than 1 percent of the 2001 total quantity. The NAICS codes 331312 and 562211 represented over 61 percent of the total quantity for 2001.

**Exhibit 28. Industry Sector-Level Information for Anthracene**

NAICS	Description	1997	1999	2001	% of Total BR Qty 2001	% Change (1997-2001)
331312	Primary Aluminum Production	101,093,879	497,061,528	987,043,207	38.6	876.4
562211	Hazardous Waste Treatment and Disposal	0	0	592,808,730	23.2	-----
321114	Wood Preservation	1,750,841,521	1,270,494,838	551,762,508	21.6	-68.5
32411	Petroleum Refineries	12,751,841,195	18,991,300,618	348,130,571	13.6	-97.3
3211	Flat glass	0	0	47,870,891	1.9	-----
56292	Materials Recovery Facilities	0	0	32,600,788	1.3	-----

**Conclusion**

There was approximately a 6 percent increase in the NPEP Priority Chemical quantity of anthracene reported to TRI from 1998 to 2001. Overall from 1998 to 2001, approximately 40 percent of the reported NPEP Priority Chemical quantity of anthracene was treated and approximately 53 percent was used in energy recovery. For each year, the quantity of anthracene treated or used in energy recovery, ranged from 85 to 95 percent of the total TRI quantity for that year.

Anthracene comprised 0.5 percent of the total NPEP Priority Chemical quantity reported to TRI in 2001 for a total quantity of 352,788 pounds. Approximately 94 percent of this total was reported by five facilities and the remaining quantity was reported by an additional 25 facilities. The majority of the anthracene quantity was reported by facilities in Region 6, particularly in Texas.

The facilities reporting over 93 percent of the 2001 NPEP Priority Chemical quantity of anthracene have listed their primary SIC codes as 2812 (Alkalies and chlorine), 2869 (industrial organic chemicals, nec), and 2865 (cyclic crudes and intermediates). Over 61 percent of the 2001 BR quantity of waste streams containing anthracene were reported by facilities within the industry sectors 331312 (primary aluminum production) and 562211 (hazardous waste treatment and disposal). The TRI and BR data used to develop this Trends Report do not indicate a correlation between the types of industries reporting the highest quantities of anthracene to TRI with those that are reporting to BR.

## Benzo(g,h,i)perylene

### Chemical Information

**CAS Number** - 191-24-2

**Alternate Names** - 1,12-benzoperylene

**General Uses** - Benzo(g,h,i)perylene is a polycyclic aromatic hydrocarbon (PAH) that occurs naturally in crude oils. It has no known commercial use or production. Emissions typically result from petroleum refining, coal tar distillation, and the incomplete combustion of organic matter.

**Potential Hazards** - Many PAHs have caused tumors in laboratory animals that were exposed to the chemicals through their food, from breathing contaminated air and when it was applied to their skin. However, these effects have not been seen in humans.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Reporting for benzo(g,h,i)perylene did not begin until 2000. Exhibit 29 shows the total quantity (pounds) of benzo(g,h,i)perylene reported in 2000 to 2001.<sup>1</sup> Benzo(g,h,i)perylene represents 1.3 percent of the total NPEP Priority Chemicals reported in 2001. The NPEP Priority Chemical quantity of benzo(g,h,i)perylene decreased by almost 55 percent from 2000 to 2001.

**Exhibit 29. National-Level Information for Benzo(g,h,i)perylene**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
BENZO(G,H,I)PERYLENE	-----	-----	2,025,570	915,474	1.3	-54.8

#### *EPA Region Information*

Exhibit 30 represents the NPEP Priority Chemical quantity (pounds) of benzo(g,h,i)perylene for the EPA Regions in 2000 to 2001. Most of the NPEP Priority Chemical quantity of benzo(g,h,i)perylene was reported by facilities in Region 4.

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<sup>1</sup> Some facilities may have mistakenly reported on their TRI Form R the threshold quantity of TRI PACs and benzo(g,h,i)perylene, contained in fuel oil, as a quantity released or as a quantity treated onsite. As such, over-reporting of quantities released to the environment or treated, for these chemicals, may mean that the NPEP Priority Chemical quantity is likewise over-stated. It is important to note that TRI chemicals in fuels that are destroyed during the combustion process are not considered treated. TRI chemicals are only considered treated if they are part of a waste stream and are then managed as a waste. EPA has notified reporters of these potential problems. As facilities submit corrected TRI Form Rs to correct any such over-reporting of this chemical, the NPEP Priority Chemical quantities may decrease in subsequent updates of this Trends Report.

**Exhibit 30. Regional-Level Information for Benzo(g,h,i)perylene**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
4	--	--	1,861,678	808,567	88.3	-56.6
5	--	--	30,753	37,066	4.0	20.5
6	--	--	16,113	27,934	3.1	73.4
10	--	--	79,843	15,164	1.7	-81.0
3	--	--	13,959	8,714	1.0	-37.6
2	--	--	16,996	7,961	0.9	-53.2
7	--	--	119	4,738	0.5	3,881.5
8	--	--	4,619	4,618	0.5	0.0
1	--	--	1,401	641	0.1	-54.2
9	--	--	89	70	0.0	-21.3
<b>TOTAL</b>	--	--	<b>2,025,570</b>	<b>915,474</b>	<b>100</b>	

*State Information*

Exhibit 31 shows the states that comprise the NPEP Priority Chemical quantities reported in 2000 and 2001 for benzo(g,h,i)perylene. Tennessee facilities had the largest quantities of benzo(g,h,i)perylene.

**Exhibit 31. State-Level Information for Benzo(g,h,i)perylene**

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
Tennessee	-----	-----	1,852,453	797,706	87.1	-56.9
Ohio	-----	-----	25,435	34,201	3.7	34.5
Louisiana	-----	-----	11,260	18,712	2.0	66.2
Washington	-----	-----	78,542	13,147	1.4	-83.3
New York	-----	-----	16,031	7,563	0.8	-52.8
Pennsylvania	-----	-----	6,217	5,611	0.6	-9.7
Texas	-----	-----	2,303	4,653	0.5	102.0
Wyoming	-----	-----	4,581	4,599	0.5	0.4
South Carolina	-----	-----	3,629	4,515	0.5	24.4
Missouri	-----	-----	0	4,500	0.5	-----
Oklahoma	-----	-----	2,446	4,206	0.5	72.0
Illinois	-----	-----	4,985	2,393	0.3	-52.0
North Carolina	-----	-----	2,345	2,308	0.3	-1.6
Mississippi	-----	-----	1,039	2,286	0.2	120.0
Oregon	-----	-----	1,238	1,990	0.2	60.7
Maryland	-----	-----	2,234	1,521	0.2	-31.9

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
West Virginia	-----	-----	4,468	1,283	0.1	-71.3
Florida	-----	-----	248	1,024	0.1	312.9
Massachusetts	-----	-----	632	491	0.1	-22.3
Puerto Rico	-----	-----	309	379	0.0	22.7
Alabama	-----	-----	1,838	377	0.0	-79.5
Minnesota	-----	-----	308	363	0.0	17.9
Arkansas	-----	-----	104	361	0.0	247.3
Kentucky	-----	-----	71	308	0.0	333.8
Delaware	-----	-----	1,001	191	0.0	-80.9
New Hampshire	-----	-----	623	142	0.0	-77.2
Iowa	-----	-----	87	130	0.0	49.4
Virginia	-----	-----	39	108	0.0	177.4
Indiana	-----	-----	21	105	0.0	400.0
California	-----	-----	89	70	0.0	-21.3
Kansas	-----	-----	30	69	0.0	128.9
Georgia	-----	-----	55	44	0.0	-20.8
Nebraska	-----	-----	2	39	0.0	1,863.8
Alaska	-----	-----	62	25	0.0	-59.7
New Jersey	-----	-----	656	19	0.0	-97.1
Colorado	-----	-----	2	18	0.0	800.0
Connecticut	-----	-----	38	5	0.0	-86.8
Maine	-----	-----	5	3	0.0	-40.0
Wisconsin	-----	-----	3	3	0.0	0.0
Idaho	-----	-----	1	2	0.0	100.0
New Mexico	-----	-----	0	2	0.0	-----
Michigan	-----	-----	1	1	0.0	0.0
North Dakota	-----	-----	1	1	0.0	0.0
Montana	-----	-----	3	0	0.0	-93.3
Rhode Island	-----	-----	103	0	0.0	-100.0
Utah	-----	-----	32	0	0.0	-100.0
<b>TOTAL</b>	-----	-----	<b>2,025,570</b>	<b>915,474</b>	<b>100</b>	

*Industry Sector (SIC Code) Information*

Exhibit 32 shows the national NPEP Priority Chemical quantity (pounds) of benzo(g,h,i)perylene by industry sector (1998 to 2001). The carbon and graphite products sector (SIC 3624) had approximately 89 percent of the total NPEP Priority Chemical quantity for benzo(g,h,i)perylene in 2001.

**Exhibit 32. Industry Sector-Level Information for Benzo(g,h,i)perylene**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
3624	Carbon and graphite products	----	----	1,878,244	818,704	89.4	-56.4
3334	Primary aluminum	----	----	100,612	24,844	2.7	-75.3
2865	Cyclic crudes and intermediates	----	----	9,755	16,212	1.8	66.2
2911	Petroleum refining	----	----	11,368	14,476	1.6	27.3
2999	Petroleum and coal products, nec	----	----	1,386	10,950	1.2	690.0
2491	Wood preserving	----	----	5,641	7,491	0.8	32.8
2895	Carbon black	----	----	9,338	7,470	0.8	-20.0
2952	Asphalt felts and coatings	----	----	959	4,895	0.5	410.4
2611	Pulp mills	----	----	1,327	2,064	0.2	55.5
2824	Organic fibers, noncellulosic	----	----	232	1,542	0.2	564.7
2062	Cane sugar refining	----	----	647	1,430	0.2	121.0
2869	Industrial organic chemicals, nec	----	----	197	1,043	0.1	429.4
2821	Plastics materials and resins	----	----	827	776	0.1	-6.2
2022	Cheese, natural and processed	----	----	618	552	0.1	-10.7
3312	Blast furnaces and steel mills	----	----	478	440	0.0	-7.9
2834	Pharmaceutical preparations	----	----	351	420	0.0	19.7
2082	Malt beverages	----	----	35	410	0.0	1,071.4
2261	Finishing plants, cotton	----	----	237	341	0.0	43.9
2621	Paper mills	----	----	747	294	0.0	-60.6
2816	Inorganic pigments	----	----	208	223	0.0	7.2
3011	Tires and inner tubes	----	----	298	193	0.0	-35.2
3661	Telephone and telegraph apparatus	----	----	264	186	0.0	-29.5
2047	Dog and cat food	----	----	196	107	0.0	-45.4
2033	Canned fruits and vegetables	----	----	39	73	0.0	87.2
2843	Surface active agents	----	----	0	70	0.0	----
5171	Petroleum bulk stations/terminals	----	----	977	56	0.0	-94.3
3351	Copper rolling and drawing	----	----	47	48	0.0	2.1
2951	Asphalt paving mixtures and blocks	----	----	32	44	0.0	37.5
2851	Paints and allied products	----	----	0	42	0.0	----
3052	Rubber and plastic hose and belting	----	----	2	39	0.0	1,850.0

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
3274	Lime	-----	-----	0	16	0.0	-----
2026	Fluid milk	-----	-----	91	10	0.0	-89.0
2631	Paperboard mills	-----	-----	16	7	0.0	-56.3
3672	Printed circuit boards	-----	-----	0	4	0.0	-----
2822	Synthetic rubber	-----	-----	5	1	0.0	-80.0
2833	Medicinals and botanicals	-----	-----	91	1	0.0	-98.9
2064	Candy/other confectionary products	-----	-----	29	0	0.0	-100.0
2241	Tobacco stemming and redrying	-----	-----	103	0	0.0	-100.0
2676	Sanitary paper products	-----	-----	98	0	0.0	-100.0
2899	Chemical preparations, nec	-----	-----	24	0	0.0	-100.0
3296	Mineral wool	-----	-----	1	0	0.0	-100.0
3357	Nonferrous wire drawing/insulating	-----	-----	1	0	0.0	-100.0
3446	Architectural metal work	-----	-----	37	0	0.0	-100.0
3613	Switchgear/switchboard apparatus	-----	-----	1	0	0.0	-100.0
3633	Household laundry equipment	-----	-----	10	0	0.0	-100.0
8221	Colleges and universities	-----	-----	1	0	0.0	-100.0
<b>TOTAL</b>		-----	-----	<b>2,025,570</b>	<b>915,474</b>		

### Biennial Report (BR) Data

#### National-Level Chemical Information

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain benzo(g,h,i)perylene. The waste codes associated with benzo(g,h,i)perylene are—K088, K169, and K170. The quantity of the hazardous waste stream(s) that may contain benzo(g,h,i)perylene increased by almost 486 percent from 1997 to 2001.

#### Exhibit 33. National-Level Information for Benzo(g,h,i)perylene

Chemical	1997	1999	2001	% change
Benzo(g,h,i)perylene	252,055,867	973,851,848	1,476,502,375	485.8

#### EPA Region Information

The following table shows the quantity (pounds) of the hazardous waste stream reported in 1997, 1999 and 2001 that may contain benzo(g,h,i)perylene for each EPA region that had over 1 percent of the 2001 total quantity. The regions with the largest quantities are Regions 2 and 6.

**Exhibit 34. Regional-Level Information for Benzo(g,h,i)perylene**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
2	54,474,489	517,806,936	913,873,854	61.9	1,577.6
3	18,030,826	12,282,462	19,444,374	1.3	7.8
4	18,248,556	17,010,434	37,992,963	2.6	108.2
5	34,632,595	16,519,058	69,887,609	4.7	101.8
6	105,592,403	382,959,055	371,278,544	25.1	251.6
7	11,930,221	16,796,604	33,357,396	2.3	179.6
8	9,116,600	10,289,002	3,235,928	0.2	-64.5
9	0	126,311	3,907,165	0.3	-----
10	30,179	61,985	23,524,543	1.6	77,849.8
TOTAL	252,055,867	973,851,848	1,476,502,375	100.0	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain benzo(g,h,i)perylene for each state which had over 1 percent of the 2001 total quantity. New York and Arkansas accounted for approximately 89 percent of this total quantity.

**Exhibit 35. State-Level Information for Benzo(g,h,i)perylene**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
NY	54,474,489	450,709,430	909,016,224	64.8	1,568.7
AR	79,372,251	361,120,343	340,071,305	24.3	328.5
OH	10,398,370	10,467,745	38,347,725	2.7	268.8
KY	13,507,830	13,325,807	24,335,816	1.7	80.2
MO	11,638,661	6,688,998	22,277,350	1.6	91.4
WA	0	0	20,545,635	1.5	-----
TX	14,274,120	9,888,813	16,912,738	1.2	18.5
IL	29,337	2,518,592	16,372,721	1.2	55,708.4
LA	37,200	10,228,193	14,139,334	1.0	37,909.0

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain benzo(g,h,i)perylene for each industry sector (NAICS code) that had more than 1 percent of the 2001 total quantity. Facilities in NAICS codes 331312 and 562211 accounted for approximately 93 percent of the total.

**Exhibit 36. Industry Sector-Level Information for Benzo(g,h,i)perylene**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
331312	Primary Aluminum Production	101,093,879	497,061,528	987,043,207	69.2	876.4
562211	Hazardous Waste Treatment and Disposal	0	0	334,637,321	23.5	-----
32411	Petroleum Refineries	0	23,969,120	64,305,217	4.5	-----
331311	Alumina Refining	0	0	24,113,760	1.7	-----
56292	Materials Recovery Facilities	0	0	16,299,186	1.1	-----

**Conclusion**

Reporting for benzo(g,h,i)perylene did not begin until 2000. There was approximately a 50 percent increase in the NPEP Priority Chemical quantity of benzo(g,h,i)perylene reported to TRI from 2000 to 2001. For both years, over 80 percent of the reported NPEP Priority Chemical quantity of benzo(g,h,i)perylene was used in energy recovery.

Benzo(g,h,i)perylene comprised 1.3 percent of the total NPEP Priority Chemical quantity reported to TRI in 2001 for a total quantity of 915,474 pounds. Approximately 90 percent of this total each year was reported by two facilities and the remaining quantity was reported by over 200 additional facilities. The majority of the benzo(g,h,i)perylene quantity was reported by facilities in Tennessee (Region 4).

In 2001, the carbon and graphite products sector (SIC 3624) reported 89 percent of the total NPEP Priority Chemical quantity for benzo(g,h,i)perylene. Facilities in NAICS codes 331312 (primary aluminum production) and 562211 (hazardous waste treatment and disposal ) accounted for over 85 percent of the total BR quantity of waste streams containing benzo(g,h,i)perylene. The TRI and BR data used to develop this Trends Report do not indicate a correlation between the types of industries reporting the highest quantities of benzo(g,h,i)perylene to TRI with those that are reporting to BR.

## Cadmium and Cadmium Compounds

### Chemical Information

**CAS Number** - 7440-43-9

**General Uses** – Cadmium, used in this country, is obtained as a by-product from melting zinc, lead, or copper ores. The cadmium by-product is used in metal plating and to make pigments, batteries and plastics.

**Potential Hazards** - Cadmium and its salts are highly toxic. Breathing high levels of cadmium severely damages the lungs and can cause death.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 37 shows the total NPEP Priority Chemical quantity (pounds) of cadmium and cadmium compounds in 1998 to 2001. The NPEP Priority Chemical quantity of cadmium and cadmium compounds decreased by about 32 percent from 1998 to 2001. Cadmium and cadmium compounds represent 1.2 percent of the total 2001 NPEP Priority Chemical quantity.

**Exhibit 37. National-Level Information for Cadmium and Cadmium Compounds**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
CADMIUM And CADMIUM COMPOUNDS	1,257,158	1,119,654	1,245,639	850,210	1.2	-32.4

#### *EPA Region Information*

The NPEP Priority Chemical quantity (pounds) of cadmium and cadmium compounds for the EPA Regions in 1998 to 2001 is shown in Exhibit 38. Facilities in Regions 10 and 6 accounted for 68 percent of the total 2001 NPEP Priority Chemical quantity of cadmium and cadmium compounds.

**Exhibit 38. Regional-Level Information for Cadmium and Cadmium Compounds**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
10	466,729	468,134	458,422	304,079	35.8	-34.8
6	212,589	182,238	366,025	273,955	32.2	28.9
4	172,596	156,506	144,118	81,047	9.5	-53.0
3	198,982	180,355	55,032	61,245	7.2	-69.2
5	94,962	96,207	131,736	52,689	6.2	-44.5
1	28,560	15,319	45,333	34,867	4.1	22.1
2	47,726	10,262	18,689	21,362	2.5	-55.2
7	27,090	2	21,820	17,432	2.1	-35.7
9	5,266	4,978	3,769	3,534	0.4	-32.9
8	2,658	5,653	695	0	0.0	-100.0
<b>TOTAL</b>	<b>1,257,158</b>	<b>1,119,654</b>	<b>1,245,639</b>	<b>850,210</b>	<b>100</b>	

### State Information

Exhibit 39 shows the NPEP Priority Chemical quantity of cadmium and cadmium compounds for the States. Facilities in Idaho and Oklahoma had relatively significant quantities, together accounting for about 63 percent of the total NPEP Priority Chemical quantity of cadmium and cadmium compounds in 2001.

**Exhibit 39. National-Level Information for Cadmium and Cadmium Compounds**

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Idaho	466,662	468,074	458,358	304,079	35.8	-34.8
Oklahoma	174,888	138,067	300,596	231,919	27.3	32.6
Alabama	77,171	90,930	79,005	47,199	5.6	-38.8
Maryland	53,578	47,295	11,413	42,912	5.0	-19.9
Ohio	77,781	81,649	50,130	35,531	4.2	-54.3
Arkansas	24,368	34,505	56,621	32,960	3.9	35.3
Connecticut	18,591	7,595	36,407	27,700	3.3	49.0
Nebraska	27,090	2	21,806	17,432	2.1	-35.7
Florida	69,294	62,683	59,096	16,995	2.0	-75.5
South Carolina	148	163	4,148	14,766	1.7	9,877.0
Indiana	2,190	2,983	2,694	14,427	1.7	558.8
Virginia	119	123	40,804	13,555	1.6	11,290.8
New York	35,252	6,283	11,238	12,717	1.5	-63.9
Texas	13,332	9,665	8,808	9,067	1.1	-32.0
New Jersey	12,474	3,979	7,451	8,645	1.0	-30.7
Massachusetts	9,968	7,723	8,908	7,167	0.8	-28.1
Pennsylvania	145,285	132,937	2,815	4,778	0.6	-96.7
California	5,266	4,978	3,769	3,534	0.4	-32.9
Michigan	4,835	2,601	2,293	2,174	0.3	-55.0
Mississippi	148	0	158	1,054	0.1	612.2
Kentucky	22,865	375	662	811	0.1	-96.5
Illinois	301	1,046	69,430	557	0.1	85.0
Tennessee	1,958	1,355	48	222	0.0	-88.7
Louisiana	1	1	0	9	0.0	800.0
Colorado	2,658	5,653	695	0	0.0	-100.0
Iowa	0	0	14	0	0.0	-----
North Carolina	1,012	1,000	1,001	0	0.0	-100.0
Rhode Island	1	1	18	0	0.0	-100.0
Washington	67	60	64	0	0.0	-100.0
Wisconsin	9,855	7,928	7,189	0	0.0	-100.0
<b>TOTAL</b>	<b>1,257,158</b>	<b>1,119,654</b>	<b>1,245,639</b>	<b>850,210</b>	100.0	

### Industry Sector (SIC Code) Information

Exhibit 40 shows the national NPEP Priority Chemical quantities (pounds) of cadmium and cadmium compounds by industry sector from 1998 to 2001. Two industry sectors make up about 65 percent of the 2001 quantity—2819 (industrial inorganic chemicals, nec) and 3341 (secondary nonferrous metals).

**Exhibit 40. Industry Sector Information for Cadmium and Cadmium Compounds**

<b>PRIMARY SIC CODE</b>	<b>SIC Description</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998-2001)</b>
2819	Industrial inorganic chemicals,nec	466,887	468,689	481,060	322,163	37.9	-31.0
3341	Secondary nonferrous metals	200,577	162,509	326,269	231,886	27.3	15.6
3312	Blast furnaces and steel mills	63,652	45,890	70,450	63,521	7.5	-0.2
2816	Inorganic pigments	78,318	49,870	14,228	47,690	5.6	-39.1
2824	Organic fibers, noncellulosic	50,600	60,000	47,300	44,170	5.2	-12.7
3471	Plating and polishing	87,114	63,765	45,935	33,056	3.9	-62.1
3356	Nonferrous rolling and drawing,nec	3,169	5,589	29,419	21,850	2.6	589.5
3691	Storage batteries	75,624	69,933	63,452	18,566	2.2	-75.4
3357	Nonferrous wire drawing/insulating	7	4	40,719	15,539	1.8	221,885.7
3678	Electronic connectors	7,919	6,283	11,238	12,717	1.5	60.6
3399	Primary metal products, nec	129,967	117,719	9,184	10,081	1.2	-92.2
2899	Chemical preparations, nec	5,681	3,066	2,912	7,249	0.9	27.6
3229	Pressed and blown glass,nec	46,670	34,870	8,399	7,050	0.8	-84.9
3351	Copper rolling and drawing	14,597	1,503	6,360	5,740	0.7	-60.7
3452	Bolts, nuts, rivets, and washers	5,266	7,462	3,769	3,534	0.4	-32.9
2869	Industrial organic chemicals,nec	5,127	6,271	5,989	3,287	0.4	-35.9
3081	Unsupported plastics, film/sheet	227	79	262	1,267	0.1	458.1
3087	Custom compound purchased resins	1,298	1,373	70,367	600	0.1	-53.8
3334	Primary aluminum	0	0	12	161	0.0	-----
2295	Coated fabrics, not rubberized	0	3,023	62	31	0.0	-----
2911	Petroleum refining	5	0	1	29	0.0	480.0
3053	Gaskets, packing/sealing devices	0	0	0	14	0.0	-----
2812	Alkalies and chlorine	0	0	0	9	0.0	-----
2631	Paperboard mills	612	0	0	0	0.0	-100.0
2893	Printing ink	0	0	14	0	0.0	-----
3211	Flat glass	67	60	64	0	0.0	-100.0
3317	Steel pipe and tubes	1,444	0	0	0	0.0	-100.0
3321	Gray and ductile iron foundries	0	2	106	0	0.0	-----
3325	Steel foundries, nec	1	0	0	0	0.0	-100.0
3363	Aluminum die castings	0	0	13	0	0.0	-----
3429	Hardware, nec	9,855	7,928	7,189	0	0.0	-100.0
3443	Fabricated plate work (boiler shops)	0	3,560	0	0	0.0	-----
3449	Miscellaneous metal work	0	0	1	0	0.0	-----
3462	Iron and steel forgings	2	0	0	0	0.0	-100.0
3694	Engine electrical equipment	68	83	0	0	0.0	-100.0
3714	Motor vehicle parts/accessories	129	123	93	0	0.0	-100.0
3721	Aircraft	0	0	772	0	0.0	-----
3743	Railroad equipment	2,275	0	0	0	0.0	-100.0
<b>TOTAL</b>		<b>1,257,158</b>	<b>1,119,654</b>	<b>1,245,639</b>	<b>850,210</b>	<b>100.0</b>	

## Biennial Report (BR) Data

### *National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain cadmium and cadmium compounds. The waste codes associated with cadmium and cadmium compounds are—D006, F006, K061, K064, K069, and K100. The quantity of the hazardous waste stream(s) that may contain cadmium and cadmium compounds decreased by 31 percent from 1997 to 2001.

**Exhibit 41. National-Level Information for Cadmium and Cadmium Compounds**

Chemical	1997	1999	2001	% change
Cadmium	57,575,665,964	59,028,292,839	39,750,419,973	-31.0

### *EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain cadmium and cadmium compounds for each EPA region. Regions 2 and 6 had the largest quantity.

**Exhibit 42. Regional-Level Information for Cadmium and Cadmium Compounds**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	2,876,604,790	5,010,512,178	811,752,852	2.0	-71.8
2	28,594,016,039	28,462,829,801	26,548,015,524	66.8	-7.2
3	3,021,242,816	2,720,589,859	345,251,485	0.9	-88.6
4	2,187,597,684	1,893,206,829	1,501,360,489	3.8	-31.4
5	6,474,477,574	5,388,211,248	1,695,167,700	4.3	-73.8
6	6,565,449,738	6,789,548,847	7,262,499,017	18.3	10.6
7	1,638,848,230	1,862,715,437	166,771,135	0.4	-89.8
8	1,043,712,123	1,206,194,079	438,590,878	1.1	-58.0
9	3,856,009,434	3,097,597,936	329,762,939	0.8	-91.4
10	1,317,707,537	2,596,886,624	651,247,954	1.6	-50.6
<b>TOTAL</b>	<b>57,575,665,964</b>	<b>59,028,292,839</b>	<b>39,750,419,973</b>	<b>100.0</b>	

### *State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain cadmium and cadmium compounds for each state that had over 1 percent of the 2001 total quantity. New York accounted for approximately 73 percent of this total; and Texas about 14 percent.

**Exhibit 43. State-Level Information for Cadmium and Cadmium Compounds**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
NY	28,219,110,695	28,055,541,593	26,441,507,917	72.5	-6.3
TX	4,623,257,853	4,904,460,603	5,178,768,497	14.2	12.0
OK	1,561,430,815	1,445,031,125	1,740,722,717	4.8	11.5
MA	1,052,255,619	4,292,658,081	730,255,261	2.0	-30.6
MN	1,228,011,384	1,752,138,622	601,429,593	1.6	-51.0
ID	1,311,941,553	2,591,627,111	525,994,983	1.4	-59.9
KY	659,183,705	499,164,915	486,213,052	1.3	-26.2
CO	164,959,297	151,777,506	393,014,717	1.1	138.2
GA	493,332,554	477,360,141	381,022,075	1.0	-22.8

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain cadmium and cadmium compounds for each industry sector (NAICS code) that accounted for more than 1 percent of the 2001 total quantity. NAICS code 325992 is associated with approximately 66 of the total, while NAICS code 562211 accounted for about 14 percent.

**Exhibit 44. Industry Sector-Level Information for Cadmium and Cadmium Compounds**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	26,946,326,620	27,391,950,342	26,340,954,419	66.3	-2.2
562211	Hazardous Waste Treatment and Disposal	0	0	5,600,087,530	14.1	-----
48819	Other Support Activities for Air Transportation	0	0	1,180,413,410	3.0	-----
331111	Iron and Steel Mills	1,815,899,264	1,524,789,809	1,121,493,075	2.8	-38.2
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	6,519,806,884	9,628,288,767	925,893,849	2.3	-85.8
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	415,933,367	445,355,484	551,323,835	1.4	32.6
325188	All Other Basic Inorganic Chemical Manufacturing	1,335,283,980	2,636,201,778	535,346,288	1.3	-59.9

## **Conclusion**

There was approximately a 32 percent decrease in the NPEP Priority Chemical quantity of cadmium and cadmium compounds reported to TRI from 1998 to 2001. For all four years, land disposal was used for over 85 percent of the reported NPEP Priority Chemical quantity of cadmium and cadmium compounds.

Cadmium and cadmium compounds make up 1.2 percent of the total NPEP Priority Chemical quantity reported to TRI in 2001 for a total quantity of 850,210 pounds. Approximately 50 percent of this total was reported by two facilities and the remaining quantity was reported by over 50 additional facilities. The majority of the cadmium and cadmium compounds quantity was reported by one facility in each of Regions 10 and 6, particularly in Idaho and Oklahoma.

Two industry sectors reported a majority of the 2001 TRI quantity—2819 (industrial inorganic chemicals, nec) and 3341 (secondary nonferrous metals). Facilities in NAICS code 325992 (photographic film, paper, plate, and chemical manufacturing) are associated with a majority of the 2001 BR quantity of waste streams containing cadmium and cadmium compounds. Results indicate that the chemical manufacturing industry reported the highest quantities of cadmium and cadmium compounds in 2001 to both TRI and BR.

## Dibenzofuran

### Chemical Information

**CAS Number** - 132-64-9

**Alternate Names** - diphenylene oxide

**General Uses** - This chemical is used as an insecticide and to make other chemicals. It is made from coal tar and has been found in coke dust, grate ash, fly ash and flame soot.

**Potential Hazards** - This chemical can cause skin, eye, nose and throat irritation.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 45 shows the total NPEP Priority Chemical quantity (pounds) of dibenzofuran reported in 1998 to 2001. Dibenzofuran accounts for 0.1 percent of the total NPEP Priority Chemical quantity for 2001. There has been a reduction of over 48 percent of the NPEP Priority Chemical quantity of dibenzofuran from 1998 to 2001.

**Exhibit 45. National-Level Information for Dibenzofuran**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
DIBENZOFURAN	117,888	118,640	90,920	60,909	0.1	-48.3

#### *EPA Region Information*

The NPEP Priority Chemical quantity (pounds) of dibenzofuran for each EPA Region in 1998 to 2001 is shown in Exhibit 46. Facilities in EPA Region 5 accounted for the majority of dibenzofuran in 2001 as well as since 1998.

**Exhibit 46. Regional-Level Information for Dibenzofuran**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
5	113,533	111,127	83,174	57,111	93.8	-49.7
3	2,453	5,647	3,291	3,671	6.0	49.7
4	1,902	1,866	2,978	127	0.2	-93.3
10	0	0	1,477	0	0.0	-----
<b>TOTAL</b>	<b>202,976</b>	<b>118,640</b>	<b>90,920</b>	<b>60,909</b>	<b>100</b>	<b>1</b>

*State Information*

Exhibit 47 presents the NPEP Priority Chemical quantity of dibenzofuran, by State. The state of Ohio accounted for approximately 91 percent of the NPEP Priority Chemical quantity of dibenzofuran.

**Exhibit 47. State-Level Information for Dibenzofuran**

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Ohio	99,733	101,132	73,194	55,474	91.1	-44.4
West Virginia	2,203	2,300	1,350	2,017	3.3	-8.4
Pennsylvania	250	3,347	1,941	1,654	2.7	561.6
Indiana	1,407	387	15	1,245	2.0	-11.5
Illinois	12,393	9,608	9,965	392	0.6	-96.8
North Carolina	0	405	33	111	0.2	-----
Alabama	1,902	1,461	2,945	16	0.0	-99.2
Washington	0	0	1,477	0	0.0	-----
<b>TOTAL</b>	<b>117,888</b>	<b>118,640</b>	<b>90,920</b>	<b>60,909</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Exhibit 48 shows the national NPEP Priority Chemical quantity (pounds) of dibenzofuran by industry sector (1998 to 2001). Only five industry sectors: 2865 (cyclic crudes and intermediates), 4925 (gas production/distribution), 2491 (wood preserving), 3312 (blast furnaces and steel mills), and 3334 (primary aluminum) had a NPEP Priority Chemical quantity of dibenzofuran in 1998 to 2001. The majority of the NPEP Priority Chemical quantity of dibenzofuran was reported by facilities in SIC code 2865 (almost 98 percent).

**Exhibit 48. Industry Sector Information for Dibenzofuran**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2865	Cyclic crudes and intermediates	115,088	114,059	89,230	59,548	97.8	-48.3
4925	Gas production or distribution	1,407	387	15	1,245	2.0	-11.5
2491	Wood Preserving	0	405	33	111	0.2	-----
3312	Blast furnaces and steel mills	1,393	3,789	165	5	0.0	-99.6
3334	Primary aluminum	0	0	1,477	0	0.0	-----
<b>TOTAL</b>		<b>117,888</b>	<b>118,640</b>	<b>90,920</b>	<b>60,909</b>	<b>100.0</b>	

## Biennial Report (BR) Data

### *National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain dibenzofuran. The waste codes associated with dibenzofuran are—D037, U124, F020, F021, F022, F023, F026, F027, F028, F032, K174, and K001. The quantity of hazardous waste stream(s) that may contain dibenzofuran decreased by 84 percent from 1997 to 2001.

**Exhibit 49. National-Level Information for Dibenzofuran**

Chemical	1997	1999	2001	% change
Dibenzofuran, Dioxins/Furans, Pentachlorophenol	2,408,460,052	1,443,336,266	386,209,301	-84.0

### *EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain dibenzofuran for each EPA region. Regions 4 and 5 had the largest quantities in 2001.

**Exhibit 50. Regional-Level Information for Dibenzofuran**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	997,910	7,028,681	51,760	0.0	-94.8
2	54,084,671	89,105,488	430,558	0.1	-99.2
3	402,876	24,590,624	4,461,705	1.2	1,007.5
4	1,629,928,755	586,361,139	94,318,739	24.4	-94.2
5	60,712,538	89,279,221	94,859,561	24.6	56.2
6	39,060,747	49,355,069	47,430,935	12.3	21.4
7	22,996,543	13,600,980	22,162,931	5.7	-3.6
8	577,422,374	529,440,949	78,922,620	20.4	-86.3
9	22,841,916	52,586,256	41,520,265	10.8	81.8
10	11,722	1,987,859	2,050,227	0.5	17,390.2
<b>TOTAL</b>	<b>2,408,460,052</b>	<b>1,443,336,266</b>	<b>386,209,301</b>	<b>100.0</b>	

### *State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain dibenzofuran for each state that had over 1 percent of the 2001 total. Wyoming and Alabama accounted for approximately 34 percent of the total quantity.

**Exhibit 51. State-Level Information for Dibenzofuran**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
WY	575,438,987	492,226,880	70,532,960	18.9	-87.7
AL	129,076,222	201,405,943	56,339,941	15.1	-56.4
IN	45,185	13,074,651	52,266,685	14.0	115573.3
AZ	5,339	40,498,634	37,543,647	10.1	703140.1
OH	14,340,433	26,105,769	33,810,913	9.1	135.8
LA	26,414,388	27,528,707	26,773,116	7.2	1.4
MS	23,778,344	28,312,115	23,844,111	6.4	0.3
AR	3,631,816	16,103,770	17,636,536	4.7	385.6
MO	2,989,786	826,663	13,083,711	3.5	337.6
GA	1,401,095,970	343,120,238	10,346,958	2.8	-99.3
KS	18,994,906	11,750,337	8,505,355	2.3	-55.2
UT	8,396	9,552,834	7,915,777	2.1	94180.3
MI	6,305,369	31,383,294	6,391,778	1.7	1.4
VA	549	18,393,723	4,220,882	1.1	768731.0
CA	17,580,003	11,982,898	3,974,350	1.1	-77.4

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain dibenzofuran for each industry sector (NAICS code) that had more than 1 percent of the 2001 total. NAICS codes 562211, 321114, and 482111 accounted for over 84 percent of this total quantity.

**Exhibit 52. Industry Sector-Level Information for Dibenzofuran**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
562211	Hazardous Waste Treatment and Disposal	0	0	153,535,613	39.8	-----
321114	Wood Preservation	1,478,673,295	650,248,022	100,995,436	26.2	-93.2
482111	Line-Haul Railroads	575,505,529	492,262,261	70,579,560	18.3	-87.7
56292	Materials Recovery Facilities	0	0	16,300,394	4.2	-----
339999	All Other Miscellaneous Manufacturing	28	0	14,575,365	3.8	52,054,776.0
32731	Cement Manufacturing	146,682	69,079	13,079,608	3.4	8,817.0
56291	Remediation Services	0	0	4,640,442	1.2	-----

## **Conclusion**

There was approximately a 40 percent decrease in the NPEP Priority Chemical quantity of dibenzofuran reported to TRI from 1998 to 2001. For 1998 and 1999, approximately 80 percent of the dibenzofuran reported to TRI was used for energy recovery. In 2000, approximately 60 percent of the reported dibenzofuran was treated and in 2001 approximately 55 percent was land disposed.

Dibenzofuran comprised 0.1 percent of the total NPEP Priority Chemical quantity reported to TRI in 2001 for a total quantity of 60,909 pounds. More than 80 percent of this total was reported by one facility in Region 5, in the state of Ohio, and the remaining quantity was reported by approximately 10 additional facilities. The situation was similar in 1998 to 2000, whereby one facility reported over 80 percent of the dibenzofuran TRI quantity, with approximately 10 other facilities reporting the remaining percentage.

The majority of the 2001 NPEP Priority Chemical quantity of dibenzofuran was reported to TRI by facilities in SIC code 2865 (cyclic crudes and intermediates). Facilities in NAICS codes 562211 (hazardous waste treatment and disposal), 321114 (wood preservation), and 482111 (line-haul railroads) accounted for the majority of the 2001 BR quantity of waste streams containing dibenzofuran. The data used to develop this Trends Report do not show a correlation between the industry sectors reporting the majority of dibenzofuran to TRI and those reporting the majority of the waste streams containing dibenzofuran to BR.

## Dioxin and Dioxin-Like Compounds

### Chemical Information

“Dioxins” refers to a group of chemical compounds that share similar chemical and biological properties. These toxic compounds are members of closely related families: the chlorinated dibenzo-p-dioxins (CDDs) and chlorinated dibenzofurans (CDFs).

**General Uses** - CDDs and CDFs are not commercially produced except in small quantities for chemical analyses and toxicological research. CDDs and CDFs are formed as unwanted byproducts when chlorinated materials are involved in combustion or other high-temperature processes, such as waste incineration, energy generation, metallurgical processes, chemical manufacturing and other industrial processes. Energy generation sources of CDD/CDF releases include the combustion of coal, oil, and wood. Industrial combustion of these fuels occurs in all of the manufacturing sectors. Other high-temperature sources include Portland cement production, pulp mills using the kraft process, asphalt mixing plants, catalyst regeneration at petroleum refineries, and carbon reactivation furnaces. Metallurgical processes that may release CDD/CDFs include ferrous sources such as iron ore sintering, coke production, and the production of steel in electric arc furnaces from scrap feed. Secondary aluminum, copper, and lead smelters may also be sources of CDD/CDFs. The scrap metal feed for secondary nonferrous metal smelting often contains impurities such as plastics, paints, and solvents, and the secondary smelting of aluminum and copper includes the use of chlorine salts. CDDs and CDFs can also be formed as unintended byproducts of manufacturing processes. For example, they are generated in pulp and paper mills during chlorine bleaching. (EPA 2000/2001 TRI Public Data Release Report)

**Potential Hazards** - Dioxins and furans can cause a number of health effects. The most well known member of the dioxins/furans family is 2,3,7,8 TCDD. It is likely to be a cancer causing substance to humans. Also, high doses of dioxin have caused a skin disease called chloracne.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 53 shows information about the total NPEP Priority Chemical quantity (pounds) of dioxins/dioxin-like compounds reported in 2000 to 2001. Reporting for dioxin and dioxin-like compounds began in 2000. The NPEP Priority Chemical quantity of dioxins and dioxin-like compounds increased by 17 percent from 2000 to 2001.

#### **Exhibit 53. National-Level Information for Dioxins and Dioxin-like Compounds**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
DIOXIN AND DIOXIN-LIKE COMPOUNDS	-----	-----	584	684	0.0	17.1

*EPA Region Information*

The NPEP Priority Chemical quantity (pounds) of dioxins and dioxin-like compounds for each EPA Region in 2000 to 2001 is shown in Exhibit 54. EPA Regions 5 and 6 have the majority (about 88 percent) of the NPEP Priority Chemical quantity of dioxins and dioxin-like compounds.

**Exhibit 54. Regional-Level Information for Dioxins and Dioxin-like Compounds**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
6	-----	-----	395	457	66.8	15.7
5	-----	-----	112	143	20.9	27.7
8	-----	-----	0	45	6.6	-----
4	-----	-----	34	32	4.7	-5.9
10	-----	-----	9	4	0.6	-55.6
2	-----	-----	28	2	0.3	-92.9
7	-----	-----	1	1	0.1	0.0
3	-----	-----	2	0	0.0	-100.0
9	-----	-----	3	0	0.0	-100.0
<b>TOTAL</b>	-----	-----	<b>584</b>	<b>684</b>	<b>100</b>	

*State Information*

Exhibit 55 shows the States with NPEP Priority Chemical quantities of dioxins and dioxin-like compounds. The States of Texas, Michigan, and Louisiana have the most significant NPEP Priority Chemical quantities of dioxins and dioxin-like compounds, accounting for over 86 percent of the national NPEP Priority Chemical quantity.

**Exhibit 55. State-Level Information for Dioxins and Dioxin-like Compounds**

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Texas	-----	-----	309	333	48.7	7.8
Michigan	-----	-----	108	136	19.9	25.9
Louisiana	-----	-----	86	124	18.1	44.2
Utah	-----	-----	0	44	6.4	-----
South Carolina	-----	-----	2	12	1.8	500.0
Mississippi	-----	-----	3	7	1.0	133.3
Tennessee	-----	-----	6	6	0.9	0.0
Alabama	-----	-----	5	3	0.4	-40.0
Indiana	-----	-----	1	3	0.4	200.0
Minnesota	-----	-----	0	3	0.4	-----
Oregon	-----	-----	7	3	0.4	-57.1
Georgia	-----	-----	1	2	0.3	100.0
New York	-----	-----	28	2	0.3	-92.9
North Carolina	-----	-----	14	2	0.3	-85.7

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Missouri	----	----	0	1	0.1	----
Ohio	----	----	2	1	0.1	-50.0
South Dakota	----	----	0	1	0.1	----
Washington	----	----	2	1	0.1	-50.0
California	----	----	2	0	0.0	-100.0
Delaware	----	----	2	0	0.0	-100.0
Kansas	----	----	1	0	0.0	-100.0
Kentucky	----	----	3	0	0.0	-100.0
Nevada	----	----	1	0	0.0	-100.0
Wisconsin	----	----	1	0	0.0	-100.0
<b>TOTAL</b>	----	----	<b>584</b>	<b>684</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

The national NPEP Priority Chemical quantities (pounds) of dioxins/dioxin-like compounds by industry sector (1998 to 2001) are presented on Exhibit 56. Approximately 78 percent of the NPEP Priority Chemical quantity of dioxin and dioxin-like compounds was reported by facilities in the industry sectors 2812 (Alkalies and chlorine) and 2869 (industrial organic chemicals, nec).

**Exhibit 56. Industry Sector Information for Dioxins and Dioxin-like Compounds**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2812	Alkalies and chlorine	---	---	336	340	49.7	1.2
2869	Industrial organic chemicals	---	---	69	192	28.1	178.3
2879	Pesticides and agricultural chemicals	---	---	12	54	7.9	350.0
3356	Nonferrous rolling and drawing, nec	---	---	0	44	6.4	----
2491	Wood preserving	---	---	26	34	5.0	30.8
2821	Plastics materials and resins	---	---	7	7	1.0	0.0
3334	Primary aluminum	---	---	6	6	0.9	0.0
3341	Secondary nonferrous metals	---	---	7	6	0.9	-14.3
9999	Nonclassifiable establishment	---	---	11	1	0.1	-90.9
2899	Chemical preparations, nec	---	---	108	0	0.0	-100.0
2865	Cyclic crudes and intermediates	---	---	2	0	0.0	-100.0
<b>TOTAL</b>		---	---	<b>584</b>	<b>684</b>	<b>100.0</b>	

## Biennial Report (BR) Data

### *National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain dioxin and dioxin-like compounds reported in 1997, 1999 and 2001. The waste codes associated with dioxin and dioxin-like compounds are—D037, U124, F020, F021, F022, F023, F026, F027, F028, F032, K174, and K001. The quantity of hazardous waste stream(s) that may contain dioxin and dioxin-like compounds decreased by 84 percent from 1997 to 2001.

**Exhibit 57. National-Level Information for Dioxins and Dioxin-like Compounds**

Chemical	1997	1999	2001	% change
Dibenzofuran, Dioxins/Furans, Pentachlorophenol	2,408,460,052	1,443,336,266	386,209,301	-84.0

### *EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain dioxin and dioxin-like compounds for each EPA region. Regions 4 and 5 had the largest quantities.

**Exhibit 58. Regional-Level Information for Dioxins and Dioxin-like Compounds**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	997,910	7,028,681	51,760	0.0	-94.8
2	54,084,671	89,105,488	430,558	0.1	-99.2
3	402,876	24,590,624	4,461,705	1.2	1,007.5
4	1,629,928,755	586,361,139	94,318,739	24.4	-94.2
5	60,712,538	89,279,221	94,859,561	24.6	56.2
6	39,060,747	49,355,069	47,430,935	12.3	21.4
7	22,996,543	13,600,980	22,162,931	5.7	-3.6
8	577,422,374	529,440,949	78,922,620	20.4	-86.3
9	22,841,916	52,586,256	41,520,265	10.8	81.8
10	11,722	1,987,859	2,050,227	0.5	17,390.2
<b>TOTAL</b>	<b>2,408,460,052</b>	<b>1,443,336,266</b>	<b>386,209,301</b>	<b>100.0</b>	

### *State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain dioxin and dioxin-like compounds for each state that had over 1 percent of the 2001 total. Wyoming and Alabama accounted for approximately 34 percent of the total.

**Exhibit 59. State-Level Information for Dioxins and Dioxin-like Compounds**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
WY	575,438,987	492,226,880	70,532,960	18.9	-87.7
AL	129,076,222	201,405,943	56,339,941	15.1	-56.4
IN	45,185	13,074,651	52,266,685	14.0	115573.3
AZ	5,339	40,498,634	37,543,647	10.1	703140.1
OH	14,340,433	26,105,769	33,810,913	9.1	135.8
LA	26,414,388	27,528,707	26,773,116	7.2	1.4
MS	23,778,344	28,312,115	23,844,111	6.4	0.3
AR	3,631,816	16,103,770	17,636,536	4.7	385.6
MO	2,989,786	826,663	13,083,711	3.5	337.6
GA	1,401,095,970	343,120,238	10,346,958	2.8	-99.3
KS	18,994,906	11,750,337	8,505,355	2.3	-55.2
UT	8,396	9,552,834	7,915,777	2.1	94180.3
MI	6,305,369	31,383,294	6,391,778	1.7	1.4
VA	549	18,393,723	4,220,882	1.1	768731.0
CA	17,580,003	11,982,898	3,974,350	1.1	-77.4

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain dioxin and dioxin-like compounds for each industry sector (NAICS code) that had more than 1 percent of the 2001 total. NAICS codes 562211 and 321114 accounted for approximately 66 percent of this total quantity.

**Exhibit 60. Industry Sector-Level Information for Dioxins and Dioxin-like Compounds**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
562211	Hazardous Waste Treatment and Disposal	0	0	153,535,613	39.8	-----
321114	Wood Preservation	1,478,673,295	650,248,022	100,995,436	26.2	-93.2
482111	Line-Haul Railroads	575,505,529	492,262,261	70,579,560	18.3	-87.7
56292	Materials Recovery Facilities	0	0	16,300,394	4.2	-----
339999	All Other Miscellaneous Manufacturing	28	0	14,575,365	3.8	52,054,776.0
32731	Cement Manufacturing	146,682	69,079	13,079,608	3.4	8,817.0
56291	Remediation Services	0	0	4,640,442	1.2	-----

## **Conclusion**

Reporting for this chemical began in 2000. The NPEP Priority Chemical quantity of dioxins and dioxin-like compounds increased by 17 percent from 2000 to 2001. Over 90 percent of the NPEP Priority Chemical quantity of dioxins and dioxin-like compounds was treated in 2000 and 2001.

Dioxin and dioxin-like compounds comprised less than 0.1 percent of the total NPEP Priority Chemical quantity reported to TRI in 2001 for a total quantity of 684 pounds. Over 50 percent of the 2000 and 2001 TRI quantity was reported by one facility in Texas (Region 6) and one facility in Michigan (Region 5). The remainder of the quantity was reported by approximately 30 additional companies.

The majority of the 2001 NPEP Priority Chemical quantity of dioxins and dioxin-like compounds was reported to TRI by facilities in SIC code 2812 (Alkalies and chlorine) and 2869 (industrial organic chemicals). Facilities in NAICS codes 562211 (hazardous waste treatment and disposal) and 321114 (wood preservation) accounted for the majority of the 2001 BR quantity of waste streams containing dioxin and dioxin-like compounds. The data used to develop this Trends Report do not show a correlation between the industry sectors reporting the majority of dioxin and dioxin-like compounds to TRI and those reporting the majority of the waste streams containing dioxin and dioxin-like compounds to BR.

# Heptachlor

## Chemical Information

Heptachlor is an organochlorine insecticide produced by the chlorination of chlordane. It is a white powder that smells like mothballs. Heptachlor was first registered in the U.S. in 1952 for use as a general insecticide on a wide range of agricultural crops. Heptachlor was also used for home and garden insect control, for termite control, and as a seed treatment. In 1974, EPA issued a Notice of Intent to Cancel all registered uses of heptachlor except those for subterranean termite control and dipping of non-food plants. In March 1978, most other uses of heptachlor were canceled.

**CAS Number** – 76-44-8

**Alternate Names** – 1,4,5,6,7,8-heptachloro-3a, 4,7,7a-tetrahydro-4,7-ethanoindene, eptachlorane

**General Use** - Heptachlor is now severely restricted and is presently only used in the U.S. to control fire ants in buried, pad-mounted electric power transformers and in underground cable television and telephone cable boxes. (EPA 2000/2001 TRI Public Data Release Report)

**Potential Hazards** – Heptachlor is highly toxic and may be fatal if inhaled, swallowed, or absorbed through the skin.

## Toxics Release Inventory (TRI) Data

There was no Priority Chemical quantity of heptachlor for the TRI reporting years 1998 to 2001.

## Biennial Report (BR) Data

### *National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain heptachlor reported in 1997, 1999 and 2001. The waste codes associated with heptachlor are—D031, P059, and K097. The quantity of the hazardous waste stream(s) that may contain heptachlor increased by almost 46 percent from 1997 to 2001.

**Exhibit 61. National-Level Information for Heptachlor**

Chemical	1997	1999	2001	% change
Heptachlor	31,487,574	124,875,927	45,863,240	45.7

### *EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain heptachlor for each EPA region. Region 5 had approximately two-thirds of the total quantity of hazardous waste stream(s) that may contain heptachlor in 2001.

**Exhibit 62. Regional-Level Information for Heptachlor**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	22,704	476,585	43,616	0.1	92.1
2	401,878	68,352,094	567,684	1.2	41.3
3	394,217	7,329,251	4,235,393	9.2	974.4
4	14,326,799	3,390,953	605,021	1.3	-95.8
5	11,844,662	22,244,653	30,376,006	66.2	156.5
6	3,296,579	10,776,466	1,529,459	3.3	-53.6
7	1,174,493	4,860,403	3,755,668	8.2	219.8
8	9,212	3,137,446	3,414,935	7.4	36,970.2
9	14,892	4,307,248	1,235,550	2.7	8,196.6
10	2,136	830	99,907	0.2	4,578.2
<b>TOTAL</b>	<b>31,487,574</b>	<b>124,875,927</b>	<b>45,863,240</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain heptachlor for each state that accounted for over 1 percent of the 2001 total quantity. Illinois and Ohio had over 66 percent of this total.

**Exhibit 63. State-Level Information for Heptachlor**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
IL	70,405	4,193,965	19,458,861	44.1	27,538.6
OH	5,492,173	6,440,951	10,046,775	22.8	82.9
VA	12,171	2	4,199,196	9.5	34,401.6
UT	0	3,128,871	3,364,856	7.6	-----
KS	636,119	3,846,449	2,826,540	6.4	344.3
CA	6,370	4,115,016	1,232,964	2.8	19,255.8
LA	3,198,314	7,647,935	878,895	2.0	-72.5
NE	495,745	847,778	757,925	1.7	52.9
IN	0	828,963	755,859	1.7	-----
AR	404	977	595,553	1.3	147,314.1

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain heptachlor for each industry sector (NAICS code) that had over 1 percent of the 2001 total quantity. NAICS code 562211 accounted for over 94 percent of this total.

**Exhibit 64. Industry Sector-Level Information for Heptachlor**

<b>NAICS</b>	<b>Description</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% of Total BR Qty (2001)</b>
562211	Hazardous Waste Treatment and Disposal	0	0	42,568,917	94.9
54199	All Other Professional, Scientific, and Technical Services	0	0	985,137	2.2
339999	All Other Miscellaneous Manufacturing	0	0	755,178	1.7
54162	Environmental Consulting Services	0	0	555,113	1.2

**Conclusion**

Heptachlor was not reported to TRI from 1998 to 2001. According to 2001 BR data, the majority of facilities reporting waste streams that contain heptachlor were from hazardous waste treatment and disposal facilities located in Illinois (Region 5).

## Hexachlorobenzene

### Chemical Information

Hexachlorobenzene (HCB) is a white crystalline solid created by the chlorination of benzene. A number of manufacturing processes for chlorinated organic compounds generate HCB as a byproduct or impurity. During the manufacture of chlorinated organic chemicals, HCB may be formed by thermal chlorination, oxychlorination, and pyrolysis when carbon and chlorine react at high temperatures. HCB is usually found in the still bottoms generated during product purification or distillation and in air emissions from distillation columns. HCB may also be found as an impurity in commercial chlorinated solvent products.

**CAS Number** - 118-74-1

**Alternate Names** - pentachlorophenyl chloride, perchlorobenzene

**General Uses** - HCB is also a potential byproduct formed during the production of metallic magnesium when produced via electrolysis with carbon electrodes. The degassing of molten aluminum with hexachloroethylene at aluminum foundries and secondary aluminum smelting plants also produces HCB. Gaseous emissions from hexachloroethylene-based aluminum degassing contain high yields of complex organochlorine compounds, including HCB.

Hexachlorobenzene was once used as an agricultural fungicide, but health concerns about its toxicity led to the cancellation of the registrations of all pesticides that contained hexachlorobenzene as an active ingredient. Its primary use was to treat wheat seeds, onions, and sorghum. As late as 1985 it was used to prevent wheat smut. Although no longer used as an active ingredient in pesticides, hexachlorobenzene is a byproduct impurity contained in a number of pesticides. However, using and intentionally making hexachlorobenzene is no longer allowed in the United States. (EPA 2000/2001 TRI Public Data Release Report)

**Potential Hazards** - This compound is an irritant of the skin, eyes, mucous membranes and upper respiratory tract. It emits toxic fumes of chlorides, carbon monoxide and carbon dioxide when heated to decomposition.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 65 shows the total NPEP Priority Chemical quantity (pounds) of hazardous waste stream(s) that may contain hexachlorobenzene reported in 1998 to 2001. Hexachlorobenzene constitutes 7 percent of the total 2001 NPEP Priority Chemical quantity. Between 1998 and 2001, the NPEP Priority Chemical quantity of hexachlorobenzene has increased almost 200 percent.

#### **Exhibit 65. National-Level Information for Hexachlorobenzene**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
HEXACHLOROENZENE	1,764,080	5,401,730	5,935,950	5,019,151	7.1	184.5

*EPA Region Information*

The NPEP Priority Chemical quantity (pounds) of hexachlorobenzene for each EPA Region in 1998 to 2001 is shown in Exhibit 66. Region 6 had over 99 percent of the NPEP Priority Chemical quantity of hexachlorobenzene in 2001.

**Exhibit 66. Regional-Level Information for Hexachlorobenzene**

<b>EPA Region</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998-2001)</b>
6	1,556,058	5,335,066	5,753,197	5,004,907	99.7	221.6
4	145,383	23,072	120,555	5,980	0.1	-95.9
9	62,639	43,592	58,666	4,560	0.1	-92.7
2	0	0	3,233	2,892	0.1	-----
8	0	0	213	623	0.0	-----
7	0	0	32	136	0.0	-----
5	0	0	54	34	0.0	-----
3	0	0	0	19	0.0	-----
<b>TOTAL</b>	<b>7,429,810</b>	<b>5,401,730</b>	<b>5,935,950</b>	<b>5,019,151</b>	<b>100</b>	

*State Information*

Exhibit 67 shows the States that had facilities reporting hexachlorobenzene in 1998 to 2001. Louisiana and Texas facilities had the most significant NPEP Priority Chemical quantities of hexachlorobenzene, accounting for over 63 percent and 36 percent, respectively, of the total NPEP Priority Chemical quantity of hexachlorobenzene.

**Exhibit 67. State-Level Information for Hexachlorobenzene**

<b>State Name</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998-2001)</b>
Louisiana	366,024	2,747,146	3,002,968	3,184,293	63.4	770.0
Texas	1,190,034	2,587,920	2,750,217	1,820,134	36.3	52.9
California	62,639	43,592	58,666	4,560	0.1	-92.7
Tennessee	145,293	21,422	117,980	3,163	0.1	-97.8
Florida	0	0	2,565	2,816	0.1	-----
New Jersey	0	0	2,985	2,687	0.1	-----
Arkansas	0	0	12	480	0.0	-----
Utah	0	0	213	433	0.0	-----
New York	0	0	248	205	0.0	-----
Colorado	0	0	0	190	0.0	-----
Kansas	0	0	30	136	0.0	-----
Illinois	0	0	22	23	0.0	-----

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
West Virginia	0	0	0	19	0.0	-----
Ohio	0	0	2	10	0.0	-----
Michigan	0	0	18	1	0.0	-----
South Carolina	0	0	0	1	0.0	-----
Georgia	0	0	2	0	0.0	-----
Iowa	0	0	2	0	0.0	-----
Kentucky	90	1,650	8	0	0.0	-100.0
Minnesota	0	0	12	0	0.0	-----
<b>TOTAL</b>	<b>1,764,080</b>	<b>5,401,730</b>	<b>5,935,950</b>	<b>5,019,151</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Exhibit 67 shows the national NPEP Priority Chemical quantity (pounds) of hexachlorobenzene by industry sector (1998 to 2001). In 2001, the industry sector 2812 (Alkalies and chlorine) accounted for almost 98 percent of the NPEP Priority Chemical quantity of hexachlorobenzene.

**Exhibit 67. Industry Sector Information for Hexachlorobenzene**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2812	Alkalies and chlorine	1,470,042	5,244,360	5,622,125	4,908,496	97.8	234
2869	Industrial organic chemicals, nec	216,365	97,620	222,499	51,340	1.0	-76
2879	Pesticides and agricultural chemicals, nec	73,866	58,108	71,767	42,403	0.8	-43
2821	Plastics materials and resins	0	0	18,104	14,971	0.3	---
2865	Cyclic crudes and intermediates	0	0	1,173	812	0.0	---
9511	Air, water, and solid waste management	3,807	0	12	480	0.0	-87
3356	Nonferrous rolling and drawing, nec	0	0	213	405	0.0	---
2819	Industrial inorganic chemicals, nec	0	1,640	18	190	0.0	---
9711	National security	0	2	0	28	0.0	---
3087	Custom compound purchased resins	0	0	25	25	0.0	---
2491	Wood preserving	0	0	0	1	0.0	---
2899	Chemical preparations, nec	0	0	12	0	0.0	---
3341	Secondary nonferrous metals	0	0	2	0	0.0	---
<b>TOTAL</b>		<b>1,764,080</b>	<b>5,401,730</b>	<b>5,935,950</b>	<b>5,019,151</b>	<b>100.0</b>	

## Biennial Report (BR) Data

### *National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain hexachlorobenzene reported in 1997, 1999 and 2001 . The waste codes associated with hexachlorobenzene are—D032, U127, F024, F025, K016, K018, K030, K042, K085, K149, K150, and K151. The quantity of hexachlorobenzene increased by 4 percent from 1997 to 2001.

**Exhibit 68. National-Level Information for Hexachlorobenzene**

Chemical	1997	1999	2001	% change
Hexachlorobenzene	19,504,651,121	23,002,436,599	20,302,442,905	4.1

### *EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain hexachlorobenzene for each EPA region. Region 6 accounted for approximately 90 percent of the 2001 total.

**Exhibit 69. Regional-Level Information for Hexachlorobenzene**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	1,968,201	1,473,211	26,315	0.0	-98.7
2	382,471,973	861,444,659	311,474,127	1.5	-18.6
3	1,904,333	19,744,227	5,524,841	0.0	190.1
4	14,028,172	1,058,116,005	30,224,303	0.1	115.5
5	60,755,140	80,064,965	48,881,437	0.2	-19.5
6	17,542,058,260	19,416,398,420	18,319,098,954	90.2	4.4
7	1,499,889,206	1,543,143,559	1,575,511,931	7.8	5.0
8	181,961	10,589,675	9,591,617	0.0	5171.2
9	639,450	11,459,341	2,021,111	0.0	216.1
10	754,424	2,537	88,270	0.0	-88.3
<b>TOTAL</b>	<b>19,504,651,121</b>	<b>23,002,436,599</b>	<b>20,302,442,905</b>	<b>100.0</b>	

### *State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain hexachlorobenzene for each state that had over 1 percent of the 2001 total. The states with the largest portion of the total quantity reported in 2001 were Texas (41 percent), Louisiana (50 percent), and Kansas (8 percent).

**Exhibit 70. State-Level Information for Hexachlorobenzene**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
LA	7,794,243,996	8,191,683,540	10,065,696,418	49.9	29.1
TX	9,747,729,177	11,216,974,313	8,250,522,083	40.9	-15.4
KS	1,496,662,048	1,539,709,796	1,561,779,712	7.7	4.4
NY	372,659,326	594,850,241	310,085,873	1.5	-16.8

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain hexachlorobenzene for each industry sector (NAICS code) that accounted for more than 1 percent of the 2001 total. NAICS Codes 42261 and 325199 accounted for more than 90 percent of this total.

**Exhibit 71. Industry Sector-Level Information for Hexachlorobenzene**

NAICS	Descriptions	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
42261	Plastics Materials and Basic Forms and Shapes Wholesalers	0	0	9,989,366,935	49.6	-----
325199	All Other Basic Organic Chemical Manufacturing	0	0	8,256,924,573	41.0	-----
325181	Alkalies and Chlorine Manufacturing	421,835,437	415,742,637	1,876,668,062	9.3	-100.0

**Conclusion**

The NPEP Priority Chemical quantity of hexachlorobenzene increased by almost 200 percent from 1998 to 2001. Over 90 percent of the NPEP Priority Chemical quantity of hexachlorobenzene was treated in all 4 years.

Hexachlorobenzene constitutes 7 percent of the total NPEP Priority Chemical quantity reported to TRI in 2001 for a total quantity of 5,019,151 pounds. Over 83 percent of the 2001 TRI quantity was reported by two facilities in Region 6, one in Texas and one in Louisiana. The remainder of the quantity was reported by approximately 30 additional companies. For 1998, 1999, and 2000, one facility in Texas and one in Louisiana reported over 75, 88, and 91 percent of the total NPEP Priority Chemical quantity for hexachlorobenzene, respectively.

The majority (over 95%) of the 2001 NPEP Priority Chemical quantity of hexachlorobenzene was reported to TRI by facilities in SIC code 2812 (Alkalies and chlorine). Facilities in NAICS codes 325199 (all other basic organic chemical manufacturing) and 42261 (plastics materials and basic forms and shapes wholesalers) accounted for the majority of the 2001 BR quantity of waste streams containing hexachlorobenzene. This data indicates that the chemical manufacturing industry reported the majority of hexachlorobenzene to TRI and also the majority of waste streams containing hexachlorobenzene to BR.

## Hexachloro-1,3-butadiene

### Chemical Information

**CAS Number** - 87-68-3

**Alternate Names** - hexachloro-1,3-butadiene, 1,3-hexachlorobutadiene, perchlorobutadiene

**General Uses** - This chemical is used to make rubber, it is used as a solvent and to make lubricants, in gyroscopes, as a heat transfer liquid, and as a hydraulic liquid.

**Potential Hazards** - This chemical is highly toxic; it may be fatal if inhaled, swallowed or absorbed through the skin.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 72 shows the total NPEP Priority Chemical quantity (pounds) of hexachloro-1,3-butadiene reported in 1998 to 2001. Hexachloro-1,3-butadiene comprised 9 percent of the total 2001 NPEP Priority Chemical quantity. From 1998 to 2001, the NPEP Priority Chemical quantity for hexachloro-1,3-butadiene has increased by 45 percent.

#### **Exhibit 72. National-Level Information for Hexachloro-1,3-butadiene**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
HEXACHLORO-1,3-BUTADIENE	4,471,095	8,764,908	9,036,216	6,482,741	9.2	45.0

#### *EPA Region Information*

The NPEP Priority Chemical quantity (pounds) of hexachloro-1,3-butadiene for each EPA Region in 1998 to 2001 is listed in Exhibit 73. Overall, facilities in three EPA Regions (Regions 2, 6, and 9) have reported NPEP Priority Chemical quantities of hexachloro-1,3-butadiene. In 2001, Region 6 had 100 percent of the NPEP Priority Chemical quantity for hexachloro-1,3-butadiene.

#### **Exhibit 73. Regional-Level Information for Hexachloro-1,3-butadiene**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
6	4,446,023	8,755,698	9,036,216	6,482,741	100	45.8
2	21,001	9,210	0	0	0	-100.0
9	4,071	0	0	0	0	-100.0
<b>TOTAL</b>	<b>4,471,095</b>	<b>8,764,908</b>	<b>9,036,216</b>	<b>6,482,741</b>	<b>100</b>	

#### *State Information*

Exhibit 74 shows the states that had NPEP Priority Chemical quantities for hexachloro-1,3-butadiene in 1998 to 2001. Louisiana, located in Region 6, had the overwhelming majority of the NPEP Priority Chemical quantity of hexachloro-1,3-butadiene.

**Exhibit 74. State-Level Information for Hexachloro-1,3-butadiene**

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Louisiana	3,830,533	5,543,399	9,013,456	6,480,097	99.96	69.2
Texas	615,490	3,212,299	22,760	2,644	0.04	-99.6
California	4,071	0	0	0	0.00	-100.0
New York	21,001	9,210	0	0	0.00	-100.0
<b>TOTAL</b>	<b>4,471,095</b>	<b>8,764,908</b>	<b>9,036,216</b>	<b>6,482,741</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Exhibit 75 shows the national NPEP Priority Chemical quantity (pounds) of hexachloro-1,3-butadiene by industry sector (1998 to 2001). Facilities within SIC 2812 (Alkalies and chlorine) had 99 percent of the 2001 NPEP Priority Chemical quantity of hexachloro-1,3-butadiene.

**Exhibit 75. Industry Sector Information for Hexachloro-1,3-butadiene**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2812	Alkalies and chlorine	4,372,824	8,723,909	9,012,627	6,416,085	99.0	46.7
2819	Industrial inorganic chemicals, nec	0	0	23,589	66,656	1.0	-----
2865	Cyclic crudes and intermediates	79,000	32,000	0	0	0.0	-100.0
2869	Industrial organic chemicals, nec	15,200	8,999	0	0	0.0	-100.0
9511	Air, water, solid waste management	4,071	0	0	0	0.0	-100.0
<b>TOTAL</b>		<b>4,471,095</b>	<b>8,764,908</b>	<b>9,036,216</b>	<b>6,482,741</b>	<b>100.0</b>	

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain hexachloro-1,3-butadiene reported in 1997, 1999 and 2001. The waste codes associated with hexachloro-1,3-butadiene are—D033, U128, K016, K018, and K030. The quantity of hazardous waste stream(s) that may contain hexachloro-1,3-butadiene increased by almost 50 percent from 1997 to 2001.

**Exhibit 76. National-Level Information for Hexachloro-1,3-butadiene**

Chemical	1997	1999	2001	% change
Hexachlorobutadiene	6,862,061,898	8,354,392,525	10,260,730,220	49.5

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain hexachloro-1,3-butadiene for each EPA region. The majority (90 percent) of the 2001 total quantity is associated with facilities in Region 6.

**Exhibit 77. Regional-Level Information for Hexachloro-1,3-butadiene**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	17,561	793,959	44,135	0.0	151.3
2	285,256,312	329,597,583	409,981,303	4.0	43.7
3	399,027	13,761,194	4,515,655	0.0	1,031.7
4	4,701,779	16,050,921	28,139,549	0.3	498.5
5	49,706,091	56,525,810	42,407,168	0.4	-14.7
6	5,773,908,514	7,402,539,686	9,230,710,202	90.0	59.9
7	747,494,478	519,176,969	537,558,870	5.2	-28.1
8	199,259	5,442,992	4,542,781	0.0	2,179.8
9	1,468	10,502,604	2,804,157	0.0	190,979.6
10	377,410	807	26,400	0.0	-93.0
<b>TOTAL</b>	<b>6,862,061,898</b>	<b>8,354,392,525</b>	<b>10,260,730,220</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain hexachloro-1,3-butadiene for each state that accounted for over 1 percent of the 2001 total quantity. Louisiana accounted for over 90 percent of this total.

**Exhibit 78. State-Level Information for Hexachloro-1,3-butadiene**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
LA	5,773,831,943	7,396,024,781	9,228,531,445	90.8	59.8
KS	745,211,739	517,581,449	524,443,626	5.2	-29.6
NY	285,182,072	217,930,200	409,229,566	4.0	43.5
			10,162,204,638	100.0	

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain hexachloro-1,3-butadiene for each industry sector (NAICS code) that had more than 1 percent of the 2001 total quantity.

**Exhibit 79. Industry Sector-Level Information for Hexachloro-1,3-butadiene**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
42261	Plastics Materials and Basic Forms and Shapes Wholesalers	0	0	9,203,310,236	89.7	-----
325181	Alkalies and Chlorine Manufacturing	155,853,620	237,493,120	937,012,853	9.1	501.2

**Conclusion**

The NPEP Priority Chemical quantity of hexachloro-1,3-butadiene increased by almost 45 percent from 1998 to 2001. Approximately 99 percent of the NPEP Priority Chemical quantity for hexachloro-1,3-butadiene was treated in all four years.

Hexachloro-1,3-butadiene comprised 9 percent of the total NPEP Priority Chemical quantity reported to TRI in 2001 for a total quantity of 6,482,741 pounds. Overall, less than 10 facilities each year in three EPA Regions (Regions 2, 6, and 9) have reported NPEP Priority Chemical quantities of hexachloro-1,3-butadiene. In 2001, facilities in Louisiana (Region 6) reported 100 percent of the NPEP Priority Chemical quantity for hexachloro-1,3-butadiene.

The majority (99%) of the 2001 NPEP Priority Chemical quantity of hexachloro-1,3-butadiene was reported to TRI by facilities in SIC code 2812 (Alkalies and chlorine). Facilities in NAICS codes 42261 (plastics materials and basic forms and shapes wholesalers) and 325181 (Alkalies and chlorine manufacturing) accounted for the majority of the 2001 BR quantity of waste streams containing Hexachloro-1,3-butadiene. The Alkalies and chlorine manufacturing industry accounted for most of the NPEP Priority Chemical quantity of hexachloro-1,3-butadiene to TRI and waste streams containing hexachloro-1,3-butadiene to BR.

## Hexachloroethane

### Chemical Information

**CAS Number** - 67-72-1

**Alternate Names** - carbon hexachloride, ethane hexachloride, perchloroethane

**General Uses** - This chemical is mostly used by the military to make weapons that produce smoke, such as smoke pots and grenades used during training. It is also present as an ingredient in fungicides, insecticides, lubricants and plastics.

**Potential Hazards** - This chemical is highly toxic; it may be fatal if inhaled, swallowed or absorbed through the skin.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 80 shows the total NPEP Priority Chemical quantity (pounds) of hexachloroethane reported in 1998 to 2001. Hexachloroethane comprised almost 6 percent of the total 2001 NPEP Priority Chemical quantity. From 1998 to 2001, the NPEP Priority Chemical quantity of hexachloroethane decreased by about 15 percent.

**Exhibit 80. National-Level Information for Hexachloroethane**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
HEXACHLOROETHANE	4,892,537	3,625,414	4,894,157	4,153,811	5.9	-15.1

#### *EPA Region Information*

Exhibit 81 shows the NPEP Priority Chemical quantity (pounds) of hexachloroethane for each EPA Region in 1998 to 2001. Region 6 had the majority of the NPEP Priority Chemical quantity for hexachloroethane throughout this period, accounting for over 98 percent of the NPEP Priority Chemical quantity in 2001.

**Exhibit 81. Regional-Level Information for Hexachloroethane**

EPA Region	1998	1999	2000	2001	% of 2001
6	4,804,856	3,537,108	4,823,164	4,085,248	98.3
5	85,401	87,890	70,764	67,852	1.6
7	2,280	416	232	711	<0.1
<b>TOTAL</b>	<b>4,892,537</b>	<b>3,625,414</b>	<b>4,922,977</b>	<b>4,153,811</b>	

### State Information

As shown in Exhibit 82, Texas and Louisiana had the majority of the NPEP Priority Chemical quantity of hexachloroethane during the period 1998 to 2001. These two States had approximately 62 percent and 36 percent, respectively, of the NPEP Priority Chemical quantity of hexachloroethane in 2001.

**Exhibit 82. State-Level Information for Hexachloroethane**

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Texas	925,566	1,236,484	3,184,584	2,575,079	62.0	178.2
Louisiana	3,879,290	2,300,624	1,638,577	1,510,169	36.4	-61.1
Michigan	85,401	87,890	68,464	63,652	1.5	-25.5
Indiana	0	0	2,300	4,200	0.1	---
Kansas	2,280	416	232	711	0.0	-68.8
<b>TOTAL</b>	<b>4,892,537</b>	<b>3,625,414</b>	<b>4,894,157</b>	<b>4,153,811</b>	<b>100.0</b>	

### Industry Sector (SIC Code) Information

Exhibit 83 shows the industry sectors that reported NPEP Priority Chemical quantities of hexachloroethane during 1998 to 2001. Most of the NPEP Priority Chemical quantity is in SIC 2812 (Alkalies and chlorine).

**Exhibit 83. Industry Sector Information for Hexachloroethane**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2812	Alkalies and chlorine	4,419,440	3,173,040	4,339,259	3,819,895	92.0	-13.6
2869	Industrial organic chemicals, nec	387,696	364,484	484,134	266,064	6.4	-31.4
2821	Plastics materials and resins	85,401	87,890	68,464	63,652	1.5	-25.5
3365	Aluminum foundries	0	0	2,300	4,200	0.1	-----
<b>TOTAL</b>		<b>4,892,537</b>	<b>3,625,414</b>	<b>4,894,157</b>	<b>4,153,811</b>	<b>100.0</b>	

## Biennial Report (BR) Data

### *National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain hexachloroethane reported in 1997, 1999 and 2001 . The waste codes associated with hexachloroethane are—D034, U131, F024, F025, K016, and K030. The quantity of hazardous waste stream(s) that may contain hexachloroethane has remained relatively the same from 1997 to 2001.

**Exhibit 84. National-Level Information for Hexachloroethane**

Chemical	1997	1999	2001	% change
Hexachloroethane	37,512,330,682	39,929,374,507	38,426,430,388	2.4

### *EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain hexachloroethane for each EPA region. The majority of the 2001 quantity was generated by facilities in Region 2.

**Exhibit 85. Regional-Level Information for Hexachloroethane**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	105,699	1,016,008	49,102	0.0	-53.5
2	27,130,200,195	28,441,805,198	26,331,309,707	68.5	-2.9
3	3,703,376	13,489,675	4,633,791	0.0	25.1
4	5,479,875	218,887,748	231,214,616	0.6	4119.3
5	57,000,975	67,441,272	40,689,771	0.1	-28.6
6	8,832,055,335	9,643,291,583	10,230,234,553	26.6	15.8
7	1,482,339,172	1,526,260,836	1,560,928,927	4.1	5.3
8	632,822	6,154,671	5,195,431	0.0	721.0
9	60,218	11,026,514	22,075,151	0.1	36559.0
10	753,015	1,003	99,339	0.0	-86.8
<b>TOTAL</b>	<b>37,512,330,682</b>	<b>39,929,374,507</b>	<b>38,426,430,388</b>	<b>100.0</b>	

### *State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain hexachloroethane for each state that had over 1 percent of the 2001 total quantity. New York accounted for more than 69 percent of this total. Louisiana and Kansas were the only other states with more than 1 percent.

**Exhibit 86. State-Level Information for Hexachloroethane**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
NY	27,120,524,680	28,308,445,589	26,330,952,134	69.4	-2.9
LA	7,319,759,250	8,173,049,887	10,056,239,960	26.5	37.4
KS	1,480,107,509	1,524,393,510	1,547,735,228	4.1	4.6

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain hexachloroethane for each industry sector (NAICS code) that accounts for over 1 percent of the 2001 total quantity. Over 68 percent of the quantity was associated with NAICS code 325992.

**Exhibit 87. Industry Sector-Level Information for Hexachloroethane**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	26,997,539,521	28,185,303,403	26,330,527,982	68.5	-2.5
42261	Plastics Materials and Basic Forms and Shapes Wholesalers	0	0	9,983,685,546	26.0	-----
325181	Alkalies and Chlorine Manufacturing	148,669,314	142,906,026	1,550,115,665	4.0	942.7
325199	All Other Basic Organic Chemical Manufacturing	0	0	366,241,764	1.0	-----

**Conclusion**

The NPEP Priority Chemical quantity of hexachloroethane decreased by almost 15 percent from 1998 to 2001. For 1998 and 1999, approximately 25 percent of the NPEP Priority Chemical quantity reported to TRI was used for energy recovery and approximately 75 percent was treated. In 2000 and 2001, the percentages shifted with only approximately 10 percent of the NPEP Priority Chemical quantity being used for energy recovery and approximately 90 percent being treated.

Hexachloroethane comprised almost 6 percent of the total NPEP Priority Chemical quantity reported to TRI in 2001 for a total quantity of 4,153,811 pounds. Six facilities in Region 6 reported the majority of the NPEP Priority Chemical quantity for this chemical throughout the

1998 to 2001 period, accounting for over 98 percent of the NPEP Priority Chemical quantity in 2001. The facilities reporting hexachloroethane were located in Texas and Louisiana.

The majority (92 percent) of the 2001 NPEP Priority Chemical quantity of hexachloroethane was reported to TRI by facilities in SIC code 2812 (Alkalies and chlorine). Facilities in NAICS codes 325992 (photographic film, paper, plate, and chemical manufacturing), 42261 (plastics materials and basic forms and shapes wholesalers) and 325181 (Alkalies and chlorine manufacturing) accounted for the majority of the 2001 BR quantity of waste streams containing hexachloroethane. Although facilities in the Alkalies and chlorine industries sector appear to have reported both hexachloroethane or waste streams containing hexachloroethane to TRI and BR, respectively, only a small percentage (2.8 percent) of the BR reporting was associated with this industry.

## Lead and Lead Compounds

### Chemical Information

Lead is a heavy, silver-white metal in its pure (elemental) form. When exposed to air, it reacts with it and turns bluish-gray. Its physical properties include a relatively low melting point (327°C), high density, and an ability to shield radiation, sound waves, and mechanical vibrations. Lead exists in either one of two ways: as the pure metal (i.e., lead metal) or as a compound, in which the lead is combined with some other element or elements. Examples of lead compounds include: lead oxide, lead sulfide, and lead acetate. Lead metal

and lead compounds are widely used in a variety of products and applications that include: lead-acid batteries, ammunition, construction materials, solder, metal castings, glass and ceramic products, plastics, electrical cable coverings, lubricating oils and greases, and certain paints

**CAS Number** - 7439-92-1

**General Uses** - Lead is often obtained by primary production through mining of ores or by secondary production through recycling. Lead and lead compounds are used in the manufacture of a variety of products. The most prominent uses of lead and lead compounds are in storage batteries, pigments and ceramic products, ammunition, sheet lead, casting metal and solder. Various other industries use or make metal products that contain lead and lead compounds. These metal products include sheet lead, casting metals, solder, bearing metals, extruded products, and brass and bronze alloys. (EPA 2000/2001 TRI Public Data Release Report)

**Potential Hazards** - Lead can affect almost every organ and system in the body. The most sensitive is the central nervous system. At high levels, lead may decrease reaction time, cause weakness in fingers, wrists, ankles, and possibly affect the memory.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 88 shows the total NPEP Priority Chemical quantity (pounds) of lead and lead compounds reported in 1998 to 2001. Lead and lead compounds accounted for 41 percent of the total 2001 NPEP Priority Chemical quantity. From 1998 to 2001, the NPEP Priority Chemical quantity of lead and lead compounds decreased by almost 2 percent.

#### **Exhibit 88. National-Level Information for Lead and Lead Compounds**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
LEAD and LEAD COMPOUNDS	28,270,659	25,620,390	27,881,953	28,817,553	41.0	1.9

*EPA Region Information*

Exhibit 89 shows the NPEP Priority Chemical quantity (pounds) of lead and lead compounds for each EPA Region in 1998 to 2001. Significant NPEP Priority Chemical quantities of lead and lead compounds are in each of the EPA Regions.

**Exhibit 89. Regional-Level Information for Lead and Lead Compounds**

<b>EPA Region</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998-2001)</b>
4	4,916,915	5,051,865	4,051,153	6,358,446	22.1	29.3
5	5,936,532	6,089,483	9,302,681	5,455,088	18.9	-8.1
6	1,945,276	2,031,203	3,373,623	4,620,782	16.0	137.5
2	2,504,230	2,658,686	2,790,241	3,085,928	10.7	23.2
3	6,093,632	4,241,666	2,632,062	2,369,672	8.2	-61.1
9	3,383,536	1,089,452	1,404,549	2,279,021	7.9	-32.6
7	1,269,945	2,381,811	2,155,858	2,189,387	7.6	72.4
10	1,224,439	1,012,612	1,002,775	1,147,122	4.0	-6.3
8	683,474	735,429	840,065	988,384	3.4	44.6
1	312,680	328,183	328,946	323,722	1.1	3.5
<b>TOTAL</b>	<b>28,270,659</b>	<b>25,620,390</b>	<b>27,881,953</b>	<b>28,817,553</b>	<b>100</b>	

*State Information*

Exhibit 90 shows the NPEP Priority Chemical quantity of lead and lead compounds for each State during the period 1998 to 2001. In 2001, South Carolina had the largest NPEP Priority Chemical quantity of lead and lead compounds.

**Exhibit 90. State-Level Information for Lead and Lead Compounds**

<b>State Name</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998-2001)</b>
South Carolina	652,568	656,226	723,184	4,563,820	15.8	599.4
New Jersey	1,820,318	1,834,017	2,048,799	2,566,122	8.9	41.0
Texas	464,065	395,535	870,955	2,414,052	8.4	420.2
Pennsylvania	5,884,640	4,206,161	2,541,490	2,133,606	7.4	-63.7
California	3,336,314	1,050,658	1,393,226	2,081,599	7.2	-37.6
Ohio	2,639,992	2,284,777	6,336,213	1,992,635	6.9	-24.5
Arkansas	1,269,854	1,520,157	2,433,461	1,693,098	5.9	33.3
Indiana	966,996	1,340,597	1,098,765	1,552,559	5.4	60.6
Nebraska	677,502	371,743	1,405,256	1,214,432	4.2	79.3
Illinois	1,722,282	1,874,814	1,478,378	1,116,259	3.9	-35.2
Oregon	836,316	758,845	771,889	704,318	2.4	-15.8
Iowa	420,529	640,885	648,292	677,772	2.4	61.2
Utah	495,839	425,528	473,716	622,559	2.2	25.6
Alabama	1,731,137	2,087,486	2,117,006	522,051	1.8	-70.0

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
New York	679,006	811,443	736,532	483,899	1.7	-28.8
Michigan	239,603	412,219	177,967	380,111	1.3	58.6
North Carolina	121,499	75,891	110,285	349,561	1.2	187.7
Georgia	1,464,784	1,303,920	569,560	348,512	1.2	-76.2
Louisiana	45,068	4,008	4,909	316,962	1.1	603.3
Washington	294,006	82,582	168,008	273,287	0.9	-7.0
Kentucky	239,907	329,123	252,785	254,523	0.9	6.1
Missouri	111,611	1,357,311	68,594	240,810	0.8	115.8
Wyoming	108,751	252,251	301,255	224,393	0.8	106.3
Minnesota	325,668	123,499	160,481	219,308	0.8	-32.7
Wisconsin	41,991	53,577	50,877	194,215	0.7	362.5
Florida	426,095	294,883	175,022	188,699	0.7	-55.7
Virginia	102,642	19,475	81,255	175,979	0.6	71.4
Oklahoma	148,299	93,513	54,924	170,796	0.6	15.2
Massachusetts	147,315	164,900	162,735	155,166	0.5	5.3
Idaho	94,117	171,185	62,878	149,625	0.5	59.0
Colorado	73,422	50,790	62,253	133,359	0.5	81.6
Hawaii	0	0	0	115,304	0.4	----
Tennessee	247,707	297,162	89,584	94,691	0.3	-61.8
Connecticut	63,700	54,484	76,153	78,541	0.3	23.3
Arizona	47,222	38,794	8,044	62,554	0.2	32.5
Kansas	60,303	11,872	33,716	56,374	0.2	-6.5
New Hampshire	45,989	48,947	42,919	39,549	0.1	-14.0
Mississippi	33,218	7,174	13,727	36,590	0.1	10.2
Puerto Rico	4,906	13,226	4,910	35,674	0.1	627.2
West Virginia	2,278	3,970	4,007	28,912	0.1	1,169.2
New Mexico	17,990	17,990	9,374	25,873	0.1	43.9
Maryland	11,924	11,103	3,328	24,911	0.1	108.9
Vermont	18,540	48,012	24,961	23,017	0.1	24.1
Alaska	0	0	0	19,892	0.1	----
Maine	5	6	5	14,703	0.1	293,956.0
Nevada	0	0	3,279	14,145	0.0	----
Rhode Island	37,131	11,834	22,173	12,746	0.0	-65.7
Delaware	92,148	957	1,982	5,928	0.0	-93.6
Guam	0	0	0	5,419	0.0	----
North Dakota	5,411	6,860	2,841	4,443	0.0	-17.9
South Dakota	0	0	0	2,734	0.0	----
Montana	51	0	0	897	0.0	1,658.2
Washington, D.C.	0	0	0	336	0.0	----
Virgin Islands	0	0	0	233	0.0	----
<b>TOTAL</b>	<b>28,270,659</b>	<b>25,620,390</b>	<b>27,881,953</b>	<b>28,817,553</b>	<b>100</b>	

*Industry Sector (SIC Code) Information*

NPEP Priority Chemical quantities of lead and lead compounds were reported by facilities in many SIC codes. Exhibit 91 lists the SIC codes for which a NPEP Priority Chemical quantity of over 10,000 pounds of lead and lead compounds was reported in 2001. Approximately 62 percent of the 2001 NPEP Priority Chemical quantity was reported by facilities in SIC code 3312 (blast furnace and steel mills), 2819 (industrial inorganic chemicals, nec), 3691 (storage batteries), and 3341 (secondary nonferrous metals). The remaining 38 percent was reported by facilities within a wide variety of industry sectors.

**Exhibit 91. Industry Sector Information for Lead and Lead Compounds**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
3312	Blast furnaces and steel mills	7,757,283	7,481,022	8,404,646	7,449,120	26.3	-4.0
2819	Industrial inorganic chemicals, nec	1,771,243	2,104,119	3,125,875	3,862,284	13.6	118.1
3691	Storage batteries	1,129,737	904,304	342,880	3,500,247	12.3	209.8
3341	Secondary nonferrous metals	6,914,229	5,505,942	6,005,383	2,877,119	10.1	-58.4
9711	National security	62,969	72,925	152,351	1,824,494	6.4	2,797.4
3369	Nonferrous foundries, nec	89,450	43,077	1,536	1,202,683	4.2	1,244.5
3229	Pressed and blown glass, nec	2,446,560	1,628,992	5,133,940	1,090,700	3.8	-55.4
3321	Gray and ductile iron foundries	57,047	112,073	259,982	965,981	3.4	1593.3
3641	Electric lamps	315,677	315,318	308,270	406,420	1.4	28.7
3315	Steel wire and related products	897,610	1,119,538	749,627	398,389	1.4	-55.6
2869	Industrial organic chemicals, nec	61,728	121,814	105,663	340,798	1.2	452.1
3357	Nonferrous wire drawing/insulating	593,735	907,842	398,125	297,050	1.0	-50.0
3679	Electronic components, nec	99,717	91,595	53,327	278,378	1.0	179.2
3671	Electron tubes	437,771	546,699	336,523	265,820	0.9	-39.3
2879	Pesticides/agricultural chemicals, nec	124,870	46,198	409,870	254,227	0.9	103.6
3366	Copper foundries	241,167	212,363	330,898	229,213	0.8	-5.0
8733	Noncommercial research organiz.	25,879	101,034	100	205,726	0.7	695.0
3674	Semiconductors and related devices	65,073	100,921	127,129	175,378	0.6	169.5
3482	Small arms ammunition	49,185	62,636	99,905	173,147	0.6	252.0
3672	Printed circuit boards	113,384	130,647	16,275	170,187	0.6	50.1
3714	Motor vehicle parts/accessories	245,126	132,943	211,976	163,681	0.6	-33.2
2816	Inorganic pigments	133,643	92,947	113,881	154,802	0.5	15.8
3471	Plating and polishing	22,944	121,290	33,301	146,913	0.5	540.3
3743	Railroad equipment	6,825	409	400	130,412	0.5	1,810.8
2874	Phosphatic fertilizers	0	0	0	130,296	0.5	-----

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
3325	Steel foundries, nec	2,724	14,294	4,400	79,812	0.3	2,830.0
3231	Products of purchased glass	108,334	119,647	28,071	78,704	0.3	-27.4
9229	Public order and safety, nec	84,684	95,554	72,299	75,704	0.3	-10.6
2911	Petroleum refining	56,286	62,984	24,892	64,342	0.2	14.3
3087	Custom compound purchased resins	44,127	37,423	55,965	64,332	0.2	45.8
2851	Paints and allied products	136,825	99,806	67,031	57,057	0.2	-58.3
3711	Motor vehicles and car bodies	61,559	51,368	52,804	57,043	0.2	-7.3
3313	Electrometallurgical products	54,613	36,654	34,749	53,327	0.2	-2.4
2611	Pulp mills	4,529	0	8,216	52,435	0.2	1,057.8
3728	Aircraft parts and equipment, nec	129	25,012	20,716	51,774	0.2	40,034.9
2621	Paper mills	17,750	19,650	18,040	49,087	0.2	176.5
3295	Minerals, ground or treated	26,691	24,487	27,659	46,538	0.2	74.4
9999	Nonclassifiable establishment	0	0	0	45,472	0.2	-----
3399	Primary metal products, nec	3,005,114	2,204,869	5,406	44,526	0.2	-98.5
2631	Paperboard mills	0	0	0	42,481	0.1	-----
9511	Air, water, solid waste management	0	0	13,929	38,500	0.1	-----
3423	Hand and edge tools, nec	40,000	38,037	45,298	37,256	0.1	-6.9
3499	Fabricated metal products, nec	44,116	32,762	30,162	36,642	0.1	-16.9
3317	Steel pipe and tubes	108,088	206,118	34,848	36,324	0.1	-66.4
3069	Fabricated rubber products, nec	10,259	12,250	10,880	34,726	0.1	238.5
3484	Small Arms	5,330	6,726	7,518	34,514	0.1	547.5
3497	Metal foil and leaf	99,785	39,990	62,389	32,600	0.1	-67.3
3398	Metal heat treating	46,415	36,561	41,373	32,333	0.1	-30.3
3432	Plumbing fixture fittings and trim	18,608	27,242	22,514	32,280	0.1	73.5
3262	Vitreous china table and kitchenware	37,030	43,846	33,570	30,229	0.1	-18.4
3675	Electronic capacitors	95,071	32,711	75,393	28,206	0.1	-70.3
2046	Wet corn milling	0	0	0	28,015	0.1	-----
3585	Refrigeration and heating equipment	1,922	1,070	2,859	27,911	0.1	1,352.2
2892	Explosives	11,753	4,521	19,153	27,711	0.1	135.8
3661	Telephone and telegraph apparatus	1,824	2,534	9,627	26,898	0.1	1,374.7
2531	Public building and related furniture	9,536	11,965	26,865	25,967	0.1	172.3
3568	Power transmission equipment, nec	22,725	452	23,393	25,760	0.1	13.4
3479	Metal coating and allied services	5,173	5,796	12,893	25,349	0.1	390.0
2899	Chemical preparations, nec	69,281	55,313	12,834	21,778	0.1	-68.6

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
3274	Lime	25,981	16,369	0	21,538	0.1	-17.1
2796	Plate making services	0	0	0	20,742	0.1	-----
3462	Iron and steel forgings	27,750	0	0	20,291	0.1	-26.9
2296	Tire cord and fabrics	0	0	9,762	19,993	0.1	-----
2873	Nitrogenous fertilizers	0	42,000	44,000	19,535	0.1	-----
3812	Search and navigation equipment	90	0	0	18,346	0.1	20,284.4
3356	Nonferrous rolling and drawing, nec	26,239	4,459	5,477	17,438	0.1	-33.5
3089	Plastics products, nec	3,986	2,620	8,001	17,066	0.1	328.1
3827	Optical instruments and lenses	0	4,895	5,115	16,819	0.1	-----
3275	Gypsum products	0	0	670	16,433	0.1	-----
3221	Glass containers	0	0	0	15,953	0.1	-----
3498	Fabricated pipe and fittings	36	2	126	15,921	0.1	44125.9
2752	Commercial printing, lithographic	0	0	0	15,835	0.1	-----

### Biennial Report (BR) Data

#### *National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain lead and lead compounds reported in 1997, 1999 and 2001. The waste codes associated with lead and lead compounds are—D008, K046, K061, and K069. The quantity of hazardous waste stream(s) that may contain lead and lead compounds decreased by 63 percent from 1997 to 2001.

#### **Exhibit 92. National-Level Information for Lead and Lead Compounds**

Chemical	1997	1999	2001	% change
Lead	46,998,732,778	44,259,168,670	17,190,902,309	-63.4

#### *EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain lead and lead compounds for each EPA region. Regions 4 and 6 had the largest quantities of hazardous waste stream(s) that may contain lead and lead compounds in 2001.

**Exhibit 93. Regional-Level Information for Lead and Lead Compounds**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	2,837,710,368	5,843,062,047	812,613,883	4.7	-71.4
2	1,507,393,651	2,872,230,227	1,790,177,066	10.4	18.8
3	8,711,265,887	10,095,737,342	501,463,998	2.9	-94.2
4	8,767,950,217	7,809,951,563	6,175,954,144	35.9	-29.6
5	8,665,426,990	5,537,168,996	2,025,884,987	11.8	-76.6
6	6,068,990,717	4,723,121,783	3,873,118,707	22.5	-36.2
7	2,352,236,184	2,042,648,453	771,995,299	4.5	-67.2
8	699,863,529	229,818,161	179,481,662	1.0	-74.4
9	7,196,039,642	4,783,977,934	349,490,851	2.0	-95.1
10	191,855,592	321,452,164	710,721,712	4.1	270.4
<b>TOTAL</b>	<b>46,998,732,778</b>	<b>44,259,168,670</b>	<b>17,190,902,309</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain lead and lead compounds for each state that accounted for over 1 percent of the 2001 total quantity. Facilities in Missouri and Oklahoma had over 16 and 10 percent of this total, respectively.

**Exhibit 94. State-Level Information for Lead and Lead Compounds**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
MS	2,434,126,483	2,382,263,199	2,651,466,546	16.4	8.9
OK	1,569,024,879	1,457,788,219	1,708,254,748	10.6	8.9
AR	295,844,531	1,623,384,436	1,633,318,659	10.1	452.1
NY	1,335,361,746	1,780,299,803	1,421,465,227	8.8	6.4
AL	1,544,288,718	1,676,162,207	1,414,210,151	8.8	-8.4
KY	1,117,330,446	959,830,524	816,050,134	5.1	-27.0
MA	783,686,659	4,286,919,421	706,261,407	4.4	-9.9
FL	304,097,687	357,073,196	682,812,204	4.2	124.5
MN	1,807,148,611	1,482,982,302	682,140,965	4.2	-62.3
ID	181,031,745	313,073,371	577,780,397	3.6	219.2
TX	4,019,344,833	808,759,330	423,661,473	2.6	-89.5
GA	312,324,282	1,403,768,118	395,887,966	2.5	26.8
OH	389,027,965	399,417,574	394,918,359	2.4	1.5
MO	843,220,457	795,371,580	385,096,200	2.4	-54.3
IN	1,918,186,397	2,363,103,929	371,460,760	2.3	-80.6
IL	731,510,566	506,746,659	349,950,492	2.2	-52.2
NJ	166,808,284	1,085,587,720	324,437,821	2.0	94.5

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
PA	4,076,756,030	5,070,643,270	321,260,095	2.0	-92.1
IA	581,832,016	473,972,907	282,655,856	1.7	-51.4
CA	6,819,762,074	4,296,225,539	274,145,333	1.7	-96.0
MI	3,803,947,656	678,241,809	172,574,597	1.1	-95.5
SC	0	0	165,485,519	1.0	-----

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain. Lead and lead compounds for each industry sector (NAICS code) that accounted for more than 1 percent of the 2001 total quantity. NAICS code 325131 and 331492 were associated with over 30 percent of the total quantity in 2001.

**Exhibit 95. Industry Sector-Level Information for Lead and Lead Compounds**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
325131	Inorganic Dye and Pigment Manufacturing	5,222,878,086	3,050,872,804	2,999,728,432	17.4	-42.6
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	4,266,481,703	4,392,753,116	2,267,979,280	13.2	-46.8
48819	Other Support Activities for Air Transportation	0	0	1,165,550,372	6.8	-----
331111	Iron and Steel Mills	1,755,738,301	1,562,582,381	1,122,678,251	6.5	-36.1
332992	Small Arms Ammunition Manufacturing	956,456,405	1,291,741,277	907,708,244	5.3	-5.1
334413	Semiconductor and Related Device Manufacturing	651,079,763	817,431,048	807,517,942	4.7	24.0
314992	Tire Cord and Tire Fabric Mills	48,867	960,969,508	792,432,015	4.6	1,621,498.6
334412	Bare Printed Circuit Board Manufacturing	11,546,891,518	10,213,815,964	652,634,804	3.8	-94.3
334417	Electronic Connector Manufacturing	362,478,303	431,075,673	578,488,927	3.4	59.6
562211	Hazardous Waste Treatment and Disposal	0	0	544,215,891	3.2	-----
335911	Storage Battery Manufacturing	1,385,797,431	1,614,609,933	543,626,891	3.2	-60.8
331222	Steel Wire Drawing	1,036,191,820	408,878,814	401,747,499	2.3	-61.2
33251	Hardware Manufacturing	6,709,666	452,214,881	303,907,609	1.8	4,429.4
332999	All Other Miscellaneous Fabricated Metal Product Manufacturing	69,327,141	333,780,767	274,725,619	1.6	296.3
339999	All Other Miscellaneous Manufacturing	1,827,649	381,348,620	201,601,041	1.2	10,930.6
49319	Other Warehousing and Storage	0	0	196,310,963	1.1	-----
92811	National Security	127,750,432	252,850,412	194,447,332	1.1	52.2

## Conclusion

The NPEP Priority Chemical quantity of lead and lead compounds decreased by almost 2 percent from 1998 to 2001. For 1998 and 1999, approximately 25 percent of the quantity reported to TRI was used for energy recovery and approximately 75 percent was treated. In 2000 and 2001, the percentages shifted with only approximately 10 percent of the reported quantity being used for energy recovery and approximately 90 percent being treated.

Lead and lead compounds comprised 41 percent of the total NPEP Priority Chemical quantity reported to TRI in 2001 for a total quantity of 28,817,553 pounds. Facilities in each region reported significant quantities of lead and lead compounds, with approximately 20 percent each of the NPEP Priority Chemical total being reported by facilities in Regions 4 and 5. In 1998, 1999, and 200, approximately 10 facilities reported 40 to 50 percent of the NPEP Priority Chemical quantity for lead and lead compounds and the remainder was reported by over 800 other facilities. In 2001, thirteen facilities reported 46 percent of the TRI quantity of lead and lead compounds and the remaining 54 percent was reported by over 3,500 facilities. The significant increase in the number facilities reporting to TRI in 2001 was likely caused by the reduced TRI reporting threshold that applied to lead and lead compounds beginning in 2001.

Approximately 60 percent of the 2001 NPEP Priority Chemical quantity of lead and lead compounds was reported by facilities in SIC code 3312 (blast furnace and steel mills), 2819 (industrial inorganic chemicals, nec), 3691 (storage batteries), and 3341 (secondary nonferrous metals). The remaining 40 percent was reported by facilities within a wide variety of industry sectors. Facilities in NAICS codes 325131 (inorganic dye and pigment manufacturing) and 331492 (secondary smelting, refining, and alloying of nonferrous metal (except copper and aluminum)) accounted for approximately 30 percent of the 2001 BR quantity of waste streams containing lead and lead compounds. The data indicates that the inorganic chemical and blast furnace and smelting industries account for the majority of the NPEP Priority Chemical quantity of lead and lead compounds reported to TRI and waste streams containing lead and lead compounds to BR.

## Lindane

### Chemical Information

**CAS Number** - 58-89-9

**Alternate Names** - Hexachlorocyclohexane, gamma-

**General Uses** - This chemical was mainly used on fruit and vegetable crops to kill insects. Today it is used as an ingredient in ointments that help cure head lice, body lice, and scabies. This chemical hasn't been made in the United States since 1977, but it is still imported into the country and formulated. Only individuals who are certified can use this chemical.

**Potential Hazards** - This chemical is highly toxic; it may be fatal if inhaled, swallowed or absorbed through the skin.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 96 shows the total NPEP Priority Chemical quantity (pounds) of lindane reported in 1998 to 2001. Lindane comprised less than 0.1 percent of the total 2001 NPEP Priority Chemical quantity and has substantially decreased from 1998 to 2001.

**Exhibit 96. National-Level Information for Lindane**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
LINDANE	8,272	82	62	49	<0.1	-99.4

#### *EPA Region Information*

Exhibit 97 shows the NPEP Priority Chemical quantity (pounds) of lindane for each EPA Region in 1998 to 2001. In 2001, EPA Region 10 had almost 94 percent of the total NPEP Priority Chemical quantity of lindane. In 1998, Region 7 had approximately 93 percent of the total NPEP Priority Chemical quantity of lindane but since then has had virtually none.

**Exhibit 97. Regional-Level Information for Lindane**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
10	221	76	62	46	93.9	-79.2
8	0	0	0	3	6.1	-----
4	390	5	0	0	0	-100.0
7	7,661	1	0	0	0	-100.0
<b>TOTAL</b>	<b>8,272</b>	<b>82</b>	<b>62</b>	<b>49</b>	<b>100</b>	

#### *State Information*

As shown in Exhibit 98, Idaho had over 93 percent of the NPEP Priority Chemical quantity of lindane in 2001.

**Exhibit 98. State-Level Information for Lindane**

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Idaho	221	76	62	46	93.9	-79.2
North Dakota	0	0	0	3	6.1	-----
Georgia	390	5	0	0	0	-100.0
Missouri	7,661	1	0	0	0	-100.0
TOTAL	8,272	82	62	49	100.0	

*Industry Sector (SIC Code) Information*

As shown in Exhibit 99, over the period of 1998 to 2001, the only industry sector to report NPEP Priority Chemical quantities of lindane has been SIC 2879 (pesticides and agricultural chemicals, nec).

**Exhibit 99. Industry Sector Information for Lindane**

Primary SIC Code	SIC Description	1998	1999	2000	2001
2879	Pesticides and agricultural chemicals, nec	8,272	82	62	49

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain lindane reported in 1997, 1999 and 2001 . The waste codes associated with lindane are—D013, U129, and F024. The quantity of hazardous waste stream(s) that may contain lindane decreased by approximately 49 percent from 1997 to 2001.

**Exhibit 100. National-Level Information for Lindane**

Chemical	1997	1999	2001	% change
Lindane	2,330,116,573	2,474,690,544	1,181,881,317	-49.3

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain lindane for each EPA region. Approximately 90 percent is associated with facilities in Region 7.

**Exhibit 101. Regional-Level Information for Lindane**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	5,031,353	869,889	25,603	0.0	-99.5
2	185,742,166	84,345,393	8,009,129	0.7	-95.7
3	1,361,870	4,378,153	107,988	0.0	-92.1
4	19,693,316	9,733,397	3,021,593	0.3	-84.7
5	6,914,081	11,408,442	5,995,015	0.5	-13.3
6	1,374,686,420	1,308,119,719	97,128,740	8.2	-92.9
7	736,497,120	1,011,184,806	1,026,957,297	86.9	39.4
8	107,105	3,109,807	2,514,920	0.2	2,248.1
9	77,896	41,539,997	38,109,742	3.2	48,823.8
10	5,247	942	11,290	0.0	115.2
TOTAL	2,330,116,573	2,474,690,544	1,181,881,317	100.0	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain lindane for each state that had over 1 percent of the total 2001 quantity. Approximately 89 percent of this quantity is associated with facilities in Kansas.

**Exhibit 102. State-Level Information for Lindane**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
KS	735,512,335	1,009,746,316	1,026,164,847	88.5	39.5
LA	102,944,986	55,237,052	50,442,655	4.3	-51.0
TX	1,271,589,143	1,252,661,733	45,709,196	3.9	-96.4
AZ	62,540	40,515,280	37,518,695	3.2	59,891.3

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain lindane for each industry sector (NAICS code) accounting for more than 1 percent of the 2001 total quantity. NAICS code 325181 accounted for approximately 88 percent of the total quantity.

**Exhibit 103. Industry Sector-Level Information for Lindane**

<b>NAICS</b>	<b>Description</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% of Total BR Qty (2001)</b>	<b>% Change (1997-2001)</b>
325181	Alkalies and Chlorine Manufacturing	23,435,929	18,874,048	1,037,449,767	87.8	4,326.7
562211	Hazardous Waste Treatment and Disposal	0	0	54,045,703	4.6	-----
325199	All Other Basic Inorganic Chemical Manufacturing	0	0	45,427,320	3.8	-----
32511	Petrochemical Manufacturing	2,005,942,134	2,255,372,211	30,884,068	2.6	-98.5

**Conclusion**

The NPEP Priority Chemical quantity of lindane has decreased by almost 99 percent from 1998 to 2001. For all four years, the majority of lindane reported to TRI was treated. Lindane comprised less than 0.1 percent of the total 2001 quantity for a total of 49 pounds. In 2001, EPA Region 10 (Idaho) had 94 percent of the total NPEP Priority Chemical quantity of lindane. In 1998, Region 7 had over 93 percent of the total NPEP Priority Chemical quantity of lindane but since then has had virtually none. Five or less facilities have reported lindane to TRI each year.

The only industry sector to report lindane to TRI has been 2879 (pesticides and agricultural chemicals). Facilities in NAICS code 325181 (Alkalies and chlorine manufacturing) accounted for approximately 88 percent of the 2001 BR quantity of waste streams containing lindane.

## Mercury and Mercury Compounds

### Chemical Information

Mercury (CAS 7439-97-6) is a heavy, silver-white metal that exists as a liquid at ambient temperatures.

**CAS Number** - 7439-97-6

**General Uses** - It is a precious metal used in chlor-alkali production, wiring devices, switching mechanisms, amalgam dental fillings, and measurement and control instruments. Industries also manufacture and process mercury reagents, catalysts, and medicinal chemicals. Metal ores, coal, crude oil, and fuel oils contain mercury as a trace constituent. Mercury is produced as a byproduct of gold ore mining operations. Secondary production of mercury involves the recovery of mercury from dismantled equipment and recovery from scrap and industrial wastes using a thermal or chemical extractive process. Major sources of recycled or recovered mercury include scrap from instrument and electrical manufactures (lamps and switches), wastes and sludge from laboratories and electrolytic refining plants, mercury batteries, and dental amalgams. Mercury is also found as a trace contaminant in fossil fuels and waste materials. The combination of the elevated temperature of the process and the volatility of mercury and mercury compounds results in their being emitted in the combustion gas exhaust stream. Two general categories of mercury emissions sources exist involving fuel combustion for energy, steam and heat generation, as well as waste disposal processes. (EPA 2000/2001 TRI Public Data Release Report)

**Potential Hazards** - The nervous system is sensitive to all forms of mercury. Methyl mercury and metallic mercury vapors are more harmful than other forms. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 104 shows the total NPEP Priority Chemical quantity (pounds) of mercury and mercury compounds reported in 1998 to 2001. There has been a significant increase in the NPEP Priority Chemical quantity of mercury and mercury compounds from 1998 to 2001. It should be noted that three companies that had significant increases in mercury and mercury compounds in 2000/2001 were contacted and it was determined that these increased quantities resulted from atypical one-time activities such as closure of chlor-alkali operations and cleanout of tanks, rather than ongoing manufacturing processes. As such, EPA anticipates that NPEP Priority Chemical quantities of mercury and mercury compounds at these facilities will substantially decrease in their future reports to TRI.

#### **Exhibit 104. National-Level Information for Mercury and Mercury Compounds**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
MERCURY And MERCURY COMPOUNDS	17,898	31,555	76,258	115,419	0.2	544.9

*EPA Region Information*

Exhibit 105 shows the NPEP Priority Chemical quantity (pounds) of mercury and mercury compounds for each EPA region in 1998-2001. The most significant increases have occurred in Regions 3, 4, and 9.

**Exhibit 105. Regional-Level Information for Mercury and Mercury Compounds**

<b>EPA Region</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998-2001)</b>
9	0	5	1,460	37,005	32.1	-----
4	2,295	2,143	14,348	25,389	22.0	1,006.3
6	6,247	8,478	33,572	22,654	19.6	262.6
3	945	1,172	2,140	20,618	17.9	2,081.8
7	2	1	673	3,568	3.1	178,300.0
5	1,397	6,929	4,497	3,562	3.1	155.0
2	0	0	1,444	1,379	1.2	-----
1	6,766	5,434	447	578	0.5	-91.5
10	246	7,393	17,475	555	0.5	125.6
8	0	0	202	112	0.1	-----
<b>TOTAL</b>	<b>17,898</b>	<b>31,555</b>	<b>76,258</b>	<b>115,419</b>	<b>100</b>	

*State Information*

The States that had NPEP Priority Chemical quantities of mercury and mercury compounds in 2001 are listed in Exhibit 106. Facilities in California, Kentucky, West Virginia, and Texas had a combined total of more than 78 percent of the 2001 NPEP Priority Chemical quantity.

**Exhibit 106. State-Level Information for Mercury and Mercury Compounds**

<b>State Name</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998-2001)</b>
California	0	5	1,439	37,000	32.1	-----
Kentucky	803	601	10,464	22,262	19.3	2,672.4
West Virginia	81	63	305	16,718	14.5	20,539.5
Texas	5,461	8,242	12,555	14,397	12.5	163.6
Louisiana	786	236	8,964	8,133	7.0	934.7
Missouri	0	0	447	3,094	2.7	-----
Pennsylvania	188	28	219	2,679	2.3	1,325.1
Ohio	297	243	2,060	1,987	1.7	569.1
Alabama	412	416	633	1,433	1.2	247.8
Delaware	676	1,081	1,337	957	0.8	41.6
Tennessee	810	822	2,346	813	0.7	0.4
Wisconsin	0	51	554	690	0.6	-----
New York	0	0	596	671	0.6	-----
New Jersey	0	0	346	571	0.5	-----
Indiana	1,100	1,400	1,134	363	0.3	-67.0

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Connecticut	0	0	102	359	0.3	-----
South Carolina	0	0	189	281	0.2	-----
North Carolina	211	281	205	274	0.2	29.9
Minnesota	0	0	314	252	0.2	-----
Illinois	0	190	357	249	0.2	-----
Kansas	1	1	9	210	0.2	20,900.0
Iowa	1	0	167	210	0.2	20,885.0
Georgia	59	23	267	168	0.1	184.9
Virginia	0	0	273	158	0.1	-----
Florida	0	0	243	157	0.1	-----
Washington	246	7,393	17,042	148	0.1	-40.0
Oregon	0	0	175	146	0.1	-----
Virgin Islands	0	0	327	137	0.1	-----
Alaska	0	0	132	131	0.1	-----
Massachusetts	0	0	73	131	0.1	-----
Idaho	0	0	126	130	0.1	-----
Maryland	0	0	6	106	0.1	-----
Wyoming	0	0	148	87	0.1	-----
New Hampshire	0	0	238	63	0.1	-----
Oklahoma	0	0	43	59	0.1	-----
Arkansas	0	0	11,973	56	0.0	-----
Nebraska	0	0	50	54	0.0	-----
Maine	6,766	5,434	32	25	0.0	-99.6
Michigan	0	5,045	78	20	0.0	-----
Montana	0	0	9	14	0.0	-----
New Mexico	0	0	37	9	0.0	-----
Utah	0	0	23	7	0.0	-----
Colorado	0	0	10	4	0.0	-----
Arizona	0	0	8	3	0.0	-----
Hawaii	0	0	13	3	0.0	-----
Mississippi	0	0	1	1	0.0	-----
<b>TOTAL</b>	<b>17,898</b>	<b>31,555</b>	<b>76,069</b>	<b>115,419</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Numerous industry sectors had NPEP Priority Chemical quantities of mercury and mercury compounds. Exhibit 107 lists the industry sectors that had a NPEP Priority Chemical quantity of more than 500 pounds of mercury and mercury compounds in 2001. Facilities in four industry sectors had about 80 percent of the 2001 NPEP Priority Chemical quantity—9711 (national security), 2869 (industrial organic chemicals, nec), 2812 (Alkalies and chlorine), and 2911 (petroleum refining).

**Exhibit 107. Industry Sector Information for Mercury and Mercury Compounds**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
9711	National Security	0	5	263	33,380	28.9	-----
2869	Industrial organic chemicals, nec	803	601	10,036	22,566	19.6	2,710.2
2812	Alkalies and chlorine	15,558	10,117	5,556	22,239	19.3	42.9
2911	Petroleum refining	0	5,940	9,553	13,987	12.1	-----
2819	Industrial inorganic chemicals, nec	188	28	3,866	5,713	4.9	2,938.8
2821	Plastics materials and resins	0	0	8,067	4,707	4.1	-----
3691	Storage batteries	0	0	377	2,851	2.5	-----
3312	Blast furnaces and steel mills	1,101	1,402	14,384	2,073	1.8	88.3
3641	Electric lamps	0	0	1,320	1,308	1.1	-----
2816	Inorganic pigments	0	0	5	845	0.7	-----
9999	Nonclassifiable establishment	0	0	41	662	0.6	-----
<b>TOTAL</b>		<b>17,898</b>	<b>31,555</b>	<b>76,258</b>	<b>115,419</b>	<b>100.0</b>	

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain mercury and mercury compounds reported in 1997, 1999 and 2001 . The waste codes associated with mercury and mercury compounds are—D009, U151, K071, K106, and K175. The quantity of hazardous waste stream(s) that may contain mercury and mercury compounds decreased by 25 percent from 1997 to 2001.

**Exhibit 108. National-Level Information for Mercury and Mercury Compounds**

Chemical	1997	1999	2001	% change
Mercury	6,920,965,186	6,126,191,073	5,183,720,598	-25.1

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999, and 2001 that may contain mercury and mercury compounds for each EPA region. Region 4 accounted for 73 percent of the total 2001 quantity.

**Exhibit 109. Regional-Level Information for Mercury and Mercury Compounds**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	72,524,870	40,420,952	4,236,290	0.1	-94.2
2	139,069,943	120,718,998	54,457,400	1.1	-60.8
3	816,316,467	925,072,384	912,094,003	17.6	11.7
4	4,339,601,253	4,219,248,593	3,782,385,511	73.0	-12.8
5	330,084,092	350,339,921	257,718,858	5.0	-21.9
6	712,768,545	108,453,788	69,484,801	1.3	-90.3
7	17,006,249	12,013,212	22,525,980	0.4	32.5
8	12,286,808	41,548,539	11,248,795	0.2	-8.4
9	480,423,607	306,762,889	60,000,241	1.2	-87.5
10	883,353	1,611,797	9,568,719	0.2	983.2
<b>TOTAL</b>	<b>6,920,965,186</b>	<b>6,126,191,073</b>	<b>5,183,720,598</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain mercury and mercury compounds for each state that had over 1 percent of the 2001 total quantity. Facilities in Georgia and Kentucky accounted for over 68 percent of this total.

**Exhibit 110. State-Level Information for Mercury and Mercury Compounds**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
GA	2,050,701,352	1,771,644,190	2,194,958,265	45.1	7.0
KY	981,402,717	1,441,642,511	1,119,517,638	23.0	14.1
DE	536,951,007	537,175,781	688,401,071	14.1	28.2
AL	880,930,863	588,044,589	450,986,057	9.3	-48.8
WV	268,709,699	239,509,833	191,338,542	3.9	-28.8
WI	258,392,895	218,896,301	175,584,820	3.6	-32.0
OH	41,480,501	69,376,344	50,241,880	1.0	21.1

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain mercury and mercury compounds for each industry sector (NAICS code) that accounted for more than 1 percent of the total 2001 quantity. NAICS code 325181 accounted for about 88 percent of this total.

**Exhibit 111. Industry Sector-Level Information for Mercury and Mercury Compounds**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
325181	Alkalies and Chlorine Manufacturing	4,944,865,465	3,747,219,164	4,569,167,813	88.1	-7.6
562211	Hazardous Waste Treatment and Disposal	0	0	234,471,381	4.5	-----
325	Chemical Manufacturing	0	0	190,280,226	3.7	-----

**Conclusion**

There has been a significant increase in the reporting of mercury and mercury compounds to TRI from 1998 to 2001. The most significant increases have occurred in Regions 3 (West Virginia), 4 (Kentucky), and 9 (California). It should be noted that significant increases in mercury and mercury compounds in 2000/2001 were attributed to atypical one-time activities such as closure of chlor-alkali operations and cleanout of tanks, rather than ongoing manufacturing processes. As such, EPA anticipates that NPEP Priority Chemical quantities of mercury and mercury compounds at these facilities will substantially decrease in their future reports to TRI.

For all four years the majority of the quantities of mercury and mercury compounds reported to TRI were associated with land disposal and treatment. In 1998 and 1999, approximately 20 facilities reported mercury and mercury compounds to TRI. In 2000 and 2001, over 300 facilities reported mercury and mercury compounds to TRI. The significant increase in the number of facilities reporting to TRI in 2000 and 2001 was likely caused by the reduced TRI reporting threshold that applied to mercury and mercury compounds beginning in 2000.

Facilities in four industry sectors reported about 80 percent of the 2001 NPEP Priority Chemical quantity—9711 (national security), 2869 (industrial organic chemicals, nec), 2812 (Alkalies and chlorine), and 2911 (petroleum refining). Facilities in NAICS codes 325181 (Alkalies and chlorine manufacturing) accounted for approximately 88 percent of the 2001 BR quantity of waste streams containing mercury and mercury compounds. The results indicate that the alkali and chlorine manufacturing industry contributes to the reporting of mercury and mercury compounds to TRI and waste streams containing mercury and mercury compounds to BR.

**Methoxychlor**

## Chemical Information

Methoxychlor is an organochlorine used as a general insecticide. It is a pale- yellow powder with a slightly fruity or musty odor. However, it is available in many forms, including powders, emulsifiable concentrates, granules, and an aerosol. Methoxychlor is similar in structure to dichlorodiphenyltrichloroethane (DDT), but it is less toxic.

**CAS Number** - 72-43-5

**Alternate Names** - 2,2-bis(p-methoxyphenyl)-1,1,1-trichloroethane

**General Uses** - This chemical is used to kill insects such as flies, mosquitoes, cockroaches, chiggers, etc. Methoxychlor also is used on agricultural crops, livestock, grain storage, home gardens, and pets. EPA has approved the use of methoxychlor as a pesticide and fumigant on more than 85 crops such as fruits, vegetables, forage crops, and shade trees. It may also be applied to large areas such as beaches, estuaries, and marshes for control of flies and mosquito larvae and may be used for spray treatment of barns, grain bins, mushroom houses, other agricultural premises, and garbage and sewage areas. (EPA 2000/2001 TRI Public Data Release Report)

**Potential Hazards** - This chemical is highly toxic; it may be fatal if inhaled, swallowed or absorbed through the skin.

## TRI Data

### *National-Level Chemical Information*

Exhibit 112 shows the total NPEP Priority Chemical quantity (pounds) of methoxychlor reported in 1998 to 2001.

**Exhibit 112. National-Level Information for Methoxychlor**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
METHOXYCHLOR	0	0	20	0	0.0	-----

### *EPA Region Information*

Exhibit 113 shows the NPEP Priority Chemical quantity (pounds) of methoxychlor for each EPA Region in 1998 to 2001. Only two EPA Regions had relatively small NPEP Priority Chemical quantities of methoxychlor during this period. In 2001, the NPEP Priority Chemical quantity of methoxychlor was 0 pounds.

**Exhibit 113. Regional-Level Information for Methoxychlor**

EPA Region	1998	1999	2000	2001
7	0	0	10	0
8	0	0	10	0
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>

### *State Information*

Exhibit 114 shows the states that had NPEP Priority Chemical quantities for methoxychlor during the period of 1998 to 2001. Methoxychlor was only reported in 2000 by facilities in three states.

**Exhibit 114. State-Level Information for Methoxychlor**

State	1998	1999	2000	2001
Colorado	0	0	10	0
Missouri	0	0	9	0
Kansas	0	0	1	0
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>

### *Industry Sector (SIC Code) Information*

Exhibit 115 shows the national NPEP Priority Chemical quantity (pounds) of methoxychlor by industry sector (1998 to 2001).

**Exhibit 115. Industry Sector Information for Methoxychlor**

Primary SIC Code	SIC Description	1998	1999	2000	2001
2879	Pesticides and agricultural chemicals, nec	0	0	11	0
2899	Chemical preparations, nec	0	0	9	0
	<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>

### **Biennial Report (BR) Data**

#### *National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain methoxychlor reported in 1997, 1999 and 2001. The waste codes associated with methoxychlor are—D014 and U247. The quantity of hazardous waste stream(s) that may contain methoxychlor decreased by approximately 61 percent from 1997 to 2001.

**Exhibit 116. National-Level Information for Methoxychlor**

Chemical	1997	1999	2001	% change
Methoxychlor	39,871,893	80,242,189	15,527,974	-61.1

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain methoxychlor for each EPA region. The largest quantity is associated with Regions 5 and 7.

**Exhibit 117. Regional-Level Information for Methoxychlor**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	886,823	7,860,634	17,792	0.1	-98.0
2	316,379	44,465,232	505,394	3.3	59.7
3	417,282	4,329,932	96,839	0.6	-76.8
4	713,343	1,859,356	1,986,464	12.8	178.5
5	3,007,853	9,438,625	4,764,931	30.7	58.4
6	32,760,910	4,837,531	1,829,105	11.8	-94.4
7	1,710,080	4,679,834	3,551,367	22.9	107.7
8	20,775	2,153,063	1,809,636	11.7	8,610.7
9	34,731	617,219	965,490	6.2	2,679.9
10	3,717	763	955	0.0	-74.3
<b>TOTAL</b>	<b>39,871,893</b>	<b>80,242,189</b>	<b>15,527,974</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain methoxychlor for each state comprising over 1 percent of the 2001 total quantity. Facilities in Ohio and Kansas accounted for over 45 percent of this total.

**Exhibit 118. State-Level Information for Methoxychlor**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
OH	2,579,139	6,523,557	3,948,288	26.5	53.1
KS	812,357	3,683,098	2,840,768	19.1	249.7
UT	0	2,146,326	1,792,184	12.0	-----
LA	32,375,536	4,732,999	1,346,750	9.0	-95.8
AL	223,028	1,510,311	1,311,271	8.8	487.9
IN	36,608	1,437,285	787,830	5.3	2,052.1
AZ	32,129	208,324	631,840	4.2	1,866.6
NE	678,395	563,579	600,092	4.0	-11.5
NY	297,650	224,901	418,801	2.8	40.7
AR	269,609	29,711	417,568	2.8	54.9
GA	34,101	84,172	375,375	2.5	1,000.8
FL	89,232	53,560	224,021	1.5	151.1
CA	10	407,009	204,690	1.4	2046797.6

### *Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain methoxychlor for each industry sector (NAICS code) accounting for more than 1 percent of the total 2001 quantity. NAICS code 562211 accounted for approximately 69 percent of this total.

**Exhibit 119. Industry Sector-Level Information for Methoxychlor**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
562211	Hazardous Waste Treatment and Disposal	0	0	10,783,046	69.4	-----
56292	Materials Recovery Facilities	0	0	1,266,883	8.2	-----
32532	Pesticide and Other Agricultural Chemical Manufacturing	219,065	291,803	974,838	6.3	345.0
339999	All Other Miscellaneous Manufacturing	0	2,206	699,617	4.5	-----
54162	Environmental Consulting Services	0	0	555,113	3.6	-----
49311	General Warehousing and Storage	13,200	204,098	439,303	2.8	3228.0

### **Conclusion**

During the period of 1998-2001, Methoxychlor was only reported to TRI in 2000 with a total of 20 pounds—75 percent being treated and 25 percent disposed of by land disposal. This quantity was reported by two facilities in Region 7 and one facility in Region 8.

Facilities in two industry sectors reported all of the 2001 NPEP Priority Chemical quantity of methoxychlor—2879 (pesticides and agricultural chemicals, nec) and 2899 (chemical preparations, nec). After hazardous waste treatment and disposal and materials recovery facilities, facilities in NAICS code 32532 (pesticides and other agricultural chemical manufacturing) accounted for the next largest percentage of the 2001 BR quantity of waste streams containing methoxychlor. The results indicate that the pesticides and agricultural chemicals manufacturing industry contributes to the reporting of methoxychlor to TRI and waste streams containing methoxychlor to BR.

## Naphthalene

### Chemical Information

**CAS Number** - 91-20-3

**Alternate Names** - naphthalin, tar camphor, white tar

**General Uses** - This chemical is used to make products like mothballs that repel and keep moths away. It is also used to make dyes, leather goods, and insecticide.

**Potential Hazards** - This chemical is flammable/combustible. In addition, if one is exposed to large doses of naphthalene, your red blood cells could be damaged or destroyed.

### TRI Data

#### *National-Level Chemical Information*

Exhibit 120 shows the total NPEP Priority Chemical quantity (pounds) of naphthalene reported in 1998 to 2001. Naphthalene accounted for about 14 percent of the national total NPEP Priority Chemical quantity in 2001. There has been an almost 30 percent decrease in the NPEP Priority Chemical quantity of naphthalene from 1998 to 2001.

**Exhibit 120. National-Level Information for Naphthalene**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
NAPHTHALENE	14,341,734	13,913,681	14,297,789	10,200,605	14.5	-28.9

#### *EPA Region Information*

Exhibit 121 shows the NPEP Priority Chemical quantity (pounds) of naphthalene for each EPA Region in 1998 to 2001. Most of the NPEP Priority Chemical quantity of naphthalene was in EPA Regions 6, 3, 5, and 4.

**Exhibit 121. Regional-Level Information for Naphthalene**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
6	8,450,619	7,710,986	9,043,352	4,255,706	41.7	-49.6
3	1,537,068	613,420	716,663	2,203,399	21.6	43.4
5	1,883,366	2,968,835	2,196,984	1,730,856	17.0	-8.1
4	1,679,001	1,770,981	1,356,422	1,188,996	11.7	-29.2
2	247,136	265,536	378,277	416,569	4.1	68.6
9	221,033	266,596	212,696	171,566	1.7	-22.4
7	172,884	175,054	184,530	130,210	1.3	-24.7
10	41,781	35,514	42,701	55,174	0.5	32.1
1	41,273	34,711	86,338	35,014	0.3	-15.2
8	67,573	72,048	79,826	13,115	0.1	-80.6
<b>TOTAL</b>	<b>14,341,734</b>	<b>13,913,681</b>	<b>14,297,789</b>	<b>10,200,605</b>	<b>100</b>	

*State Information*

Exhibit 122 lists the states that had NPEP Priority Chemical quantities of naphthalene during the period of 1998 to 2001. Texas had about 32 percent of the total NPEP Priority Chemical quantity of naphthalene.

**Exhibit 122. State-Level Information for Naphthalene**

<b>State Name</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998-2001)</b>
Texas	6,798,940	6,990,142	8,252,237	3,281,458	32.2	-51.7
West Virginia	416,055	187,243	182,593	1,529,966	15.0	267.7
Indiana	736,971	1,285,681	1,151,006	826,120	8.1	12.1
Louisiana	869,124	488,239	629,462	630,553	6.2	-27.4
Illinois	265,759	365,845	536,920	526,029	5.2	97.9
Pennsylvania	1,065,988	354,003	471,187	493,432	4.8	-53.7
New Jersey	246,041	258,317	371,844	329,619	3.2	34.0
South Carolina	160,295	200,151	413,334	304,115	3.0	89.7
Arkansas	564,559	205,155	124,544	298,798	2.9	-47.1
Mississippi	118,659	317,054	287,441	259,534	2.5	118.7
Ohio	779,494	1,162,138	381,653	256,556	2.5	-67.1
Kentucky	156,236	221,365	190,831	190,244	1.9	21.8
Georgia	84,579	158,156	187,368	185,462	1.8	119.3
California	218,329	265,141	211,276	170,417	1.7	-21.9
Virginia	34,631	47,725	39,340	167,926	1.6	384.9
Alabama	892,918	619,097	161,471	153,213	1.5	-82.8
Michigan	78,042	130,062	98,654	103,282	1.0	32.3
New York	879	6,988	6,356	86,782	0.9	9,772.8
Washington	41,747	35,474	42,620	54,981	0.5	31.7
North Carolina	14,736	98,007	70,100	51,725	0.5	251.0
Iowa	117,961	108,002	94,856	46,522	0.5	-60.6
Missouri	16,904	30,890	46,747	44,745	0.4	164.7
Florida	46,465	109,215	41,073	39,087	0.4	-15.9
Kansas	38,019	36,162	34,102	38,943	0.4	2.4
Oklahoma	217,741	27,189	36,048	29,947	0.3	-86.2
Massachusetts	29,498	9,591	37,141	27,654	0.3	-6.3
Wisconsin	11,441	21,097	19,274	18,608	0.2	62.6
New Mexico	255	261	1,061	14,950	0.1	5,762.7
Maryland	7,000	14,763	17,687	11,443	0.1	63.5
Wyoming	54,786	51,749	52,050	7,564	0.1	-86.2
Connecticut	5,661	23,959	38,785	7,360	0.1	30.0
Tennessee	205,113	47,936	4,804	5,616	0.1	-97.3
Utah	2,234	9,543	15,735	2,807	0.0	25.6
Montana	9,903	10,073	11,171	1,919	0.0	-80.6
Hawaii	2,704	1,427	1,266	1,144	0.0	-57.7
Delaware	13,394	9,686	5,856	632	0.0	-95.3

State Name	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
North Dakota	290	272	436	432	0.0	49.0
Colorado	360	411	434	393	0.0	9.2
Minnesota	11,659	4,012	9,477	261	0.0	-97.8
Alaska	0	0	46	189	0.0	-----
Virgin Islands	180	231	77	168	0.0	-6.7
Guam	0	28	154	5	0.0	-----
Oregon	34	40	0	4	0.0	-88.2
Idaho	0	0	35	0	0.0	---
Maine	5,941	1,161	1,149	0	0.0	-100.0
Nebraska	0	0	8,825	0	0.0	-----
Puerto Rico	36	0	0	0	0.0	-100.0
Rhode Island	173	0	9,263	0	0.0	-100.0
<b>TOTAL</b>	<b>14,341,734</b>	<b>13,913,681</b>	<b>14,297,789</b>	<b>10,200,605</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Exhibit 123 shows the industry sectors that had a NPEP Priority Chemical quantity (pounds) of over 1,000 pounds of naphthalene in 2001. Four industry sectors had the majority of the NPEP Priority Chemical quantity of naphthalene in 2001: 3479 (metal coating and allied services), 2879 (pesticides and agricultural chemicals, nec), 2911 (petroleum refining), and 2869 (industrial organic chemicals, nec).

**Exhibit 123. Industry Sector Information for Naphthalene**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
3479	Metal coating and allied services	1,133,214	1,463,736	1,728,426	1,565,381	15.3	38.1
2879	Pesticides and agricultural chemicals, nec	106,989	49,992	95,729	1,382,566	13.6	1,192.3
2911	Petroleum refining	5,000,607	4,374,797	5,413,601	1,262,816	12.4	-74.7
2869	Industrial inorganic chemicals, nec	1,648,173	1,448,174	1,368,254	1,128,446	11.1	-31.5
2812	Alkalies and chlorine	475,606	728,061	603,399	707,469	6.9	48.8
2865	Cyclic crudes and intermediates	1,971,017	1,469,917	703,249	531,837	5.2	-73.0
2822	Synthetic rubber	0	652,015	617,120	481,888	4.7	-----
2821	Plastics materials and resins	1,237,032	810,940	657,772	400,614	3.9	-67.6
3334	Primary aluminum	32,193	210,294	224,303	347,706	3.4	980.1
2262	Finishing plants, man-made	110,200	140,000	370,000	300,000	2.9	172.2
4925	Gas production/distribution	530,731	833,174	627,800	270,489	2.7	-49.0
9511	Air, water, solid waste management	49,366	92,065	84,657	269,205	2.6	445.3
2819	Industrial inorganic chemicals, nec	205,685	112,240	314,309	219,822	2.2	6.9

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
5171	Petroleum bulk stations/terminals	20,258	6,014	61,838	135,766	1.3	570.2
3295	Minerals, ground or treated	18,478	58,027	18,801	122,828	1.2	564.7
2843	Surface active agents	55,910	111,049	117,948	113,883	1.1	103.7
3499	Fabricated Metal products, nec	19,873	18,509	64,000	102,542	1.0	416.0
3312	Blast furnaces and steel mills	63,463	48,595	51,954	81,881	0.8	29.0
3468	Crowns and closures	36,910	39,175	37,429	80,877	0.8	119.1
2082	Malt beverages	0	0	0	78,455	0.8	-----
3341	Secondary nonferrous metals	53,787	47,349	59,128	57,477	0.6	6.9
3321	Gray and ductile iron foundries	14,450	2,209	108,454	55,914	0.5	286.9
2899	Chemical preparations, nec	276,076	117,444	116,553	51,930	0.5	-81.2
3325	Steel foundries, nec	58,536	74,307	67,730	49,547	0.5	-15.4
2861	Gum and wood chemicals	13,550	25,589	19,635	42,215	0.4	211.5
2851	Paints and allied products	70,124	168,608	53,777	41,786	0.4	-40.4
3316	Cold finishing of steel shapes	435,270	19,479	26,823	41,674	0.4	-90.4
3411	Metal cans	59,914	57,122	65,888	29,134	0.3	-51.4
3448	Prefabricated metal buildings	43,104	75,639	75,778	28,308	0.3	-34.3
3291	Abrasive products	24,663	857	31,074	26,678	0.3	8.2
3444	Sheet metal work	0	41,037	35,464	25,504	0.3	-----
2591	Drapery hardware and blinds and shades	72,222	69,966	121,283	25,195	0.2	-65.1
3621	Motors and generators	11,074	12,037	33,411	24,368	0.2	120.0
3355	Aluminum rolling and drawing, nec	0	30,550	25,357	21,060	0.2	-----
3357	Nonferrous wire drawing and insulating	41,072	64,592	1,220	18,876	0.2	-54.0
3711	Motor vehicles and car bodies	1,080	40	2,105	18,208	0.2	1,585.9
2611	Pulp mills	400	45	0	16,000	0.2	3,900.0
3714	Motor vehicle parts and accessories	98	13,212	4,130	10,556	0.1	10,671.4
5169	Chemicals and allied products, nec	93,486	92,086	13,408	8,472	0.1	-90.9
2621	Paper mills	6,400	7,000	6,616	8,400	0.1	31.3
3589	Service industry machinery, nec	0	0	6,931	3,216	0.0	-----
8734	Testing laboratories	0	0	0	3,030	0.0	-----
9711	National security	0	611	3,141	2,872	0.0	-----
3724	Aircraft engines and engine parts	0	12,856	28,900	1,830	0.0	-----
2531	Public building and related furniture	0	0	0	1,300	0.0	-----
3449	Miscellaneous metal work	0	6,800	2,457	1,244	0.0	-----
<b>TOTAL</b>		<b>14,341,734</b>	<b>13,913,681</b>	<b>14,297,789</b>	<b>10,200,605</b>	<b>100</b>	

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain naphthalene reported in 1997, 1999 and 2001 . The waste codes associated with naphthalene are—U165, F024, F025, F034, K001, K035, K048, K049, K051, K052, K060, K087, and K145. The quantity of hazardous waste stream(s) that may contain naphthalene decreased by about 11 percent from 1997 to 2001.

**Exhibit 124. National-Level Information for Naphthalene**

<b>Chemical</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% change</b>
Naphthalene	34,478,142,476	49,851,787,810	30,612,285,922	-11.2

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain naphthalene for each EPA region. The majority of the quantity was generated by facilities in Region 2.

**Exhibit 125. Regional-Level Information for Naphthalene**

<b>Region</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% of Total BR Qty (2001)</b>	<b>% Change (1997-2001)</b>
1	269,301	2,995,909	479,042	0.0	77.9
2	27,086,515,885	29,631,934,754	27,330,510,371	89.3	0.9
3	74,329,267	13,728,623,255	67,955,035	0.2	-8.6
4	468,745,061	346,025,875	147,033,994	0.5	-68.6
5	1,100,207,104	1,147,547,323	248,373,148	0.8	-77.4
6	4,137,244,584	3,067,399,397	1,463,216,341	4.8	-64.6
7	985,573,767	1,228,052,194	1,082,871,422	3.5	9.9
8	611,330,262	510,845,197	86,127,841	0.3	-85.9
9	13,539,397	185,974,619	183,076,434	0.6	1,252.2
10	387,847	2,389,288	2,642,292	0.0	581.3
<b>TOTAL</b>	<b>34,478,142,476</b>	<b>49,851,787,810</b>	<b>30,612,285,922</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain naphthalene for states with quantities over 1 percent. New York had over 92 percent of this the 2001 BR quantity.

**Exhibit 126. State-Level Information for Naphthalene**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
NY	27,031,851,735	29,318,724,044	27,237,781,436	92.1	0.8
KS	781,203,703	1,074,326,218	1,068,486,894	3.6	36.8
LA	2,163,434,502	893,969,611	939,125,126	3.2	-56.6
TX	1,966,152,597	1,779,003,140	318,661,816	1.1	-83.8

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain naphthalene for NAICS codes comprising more than 1 percent of the 2001 total. NAICS code 325992 accounted for 89 percent of the total 2001 quantity.

**Exhibit 127. Industry Sector-Level Information for Naphthalene**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	26,997,474,559	29,318,130,965	27,236,374,638	89.0	0.9
325181	Alkalies and Chlorine Manufacturing	23,995,764	19,690,138	1,038,796,488	3.4	4229.1
42261	Plastics Materials and Basic Forms and Shapes Wholesalers	0	0	787,443,375	2.6	-----
321114	Wood Preservation	497,910,642	987,803,013	459,641,782	1.5	-7.7
562211	Hazardous Waste Treatment and Disposal	0	0	398,214,813	1.3	-----

**Conclusion**

There has been an almost 30 percent decrease in the NPEP Priority Chemical quantity of naphthalene reported to TRI from 1998 to 2001. For all four years less than 10 percent of the quantity of naphthalene reported to TRI was associated with land disposal. In 1998, 1999, and 2000 approximately 30 to 40 percent of the reported TRI quantity was used for energy recover and 50 to 70 percent was treated. In 2001, 56 percent was used for energy recovery and 39 percent was treated.

Naphthalene accounted for about 14 percent of the national total NPEP Priority Chemical quantity in 2001. Most of the NPEP Priority Chemical quantity of naphthalene was in EPA Regions 3, 4, 5, and 6, with facilities in Texas reporting approximately 32 percent of the total

naphthalene reported to TRI in 2001. For all four years, approximately 25 out of 400 facilities reported 60 to 70 percent of the total NPEP Priority Chemical quantity for naphthalene.

Four industry sectors reported the majority of the NPEP Priority Chemical quantity of naphthalene in 2001—3479 (metal coating and allied services), 2879 (pesticides and agricultural chemicals, nec), 2911 (petroleum refining), and 2869 (industrial organic chemicals, nec). Facilities in NAICS codes 325992 (photographic film, paper, plate, and chemical manufacturing) accounted for approximately 89 percent of the 2001 BR quantity of waste streams containing naphthalene.

## Pendimethalin

### Chemical Information

Pendimethalin is a orange-yellow crystalline solid and is formulated in liquid, solid, and granular forms, and also as an emulsifiable concentrate.

**CAS Number** - 40487-42-1

**Alternate Names** - 3,4-xylidine, benzenamine, penoxalin

**General Uses** - Pendimethalin is used as a pre-emergence and postemergence herbicide on cotton, dry bupounds, onions, dry bulb shallots, edible beans, corn, legumes, garlic, grain, nonbearing fruit, nut crops, peanuts, potatoes, rice, soybeans, sugar cane, sunflowers, sweet corn, and sweet lupine. It is also used for pre-emergence control of many annual grasses and certain broadleaf weeds. Pendimethalin is applied by broadcasting, directed spray, and soil treatment. (EPA 2000/2001 TRI Public Data Release Report)

**Potential Hazards** - This chemical is considered to have low acute toxicity. It is slightly toxic if you are exposed to it by eating or drinking contaminated food or water.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 128 shows the total NPEP Priority Chemical quantity (pounds) of pendimethalin reported in 1998 to 2001. From 1998 to 2001, the NPEP Priority Chemical quantity of pendimethalin decreased by over 26 percent.

**Exhibit 128. National-Level Information for Pendimethalin**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
PENDIMETHALIN	265,131	217,165	679,808	195,671	0.3	-26.2

#### *EPA Region Information*

Exhibit 129 shows the NPEP Priority Chemical quantity (pounds) of pendimethalin for each EPA Region in 1998 to 2001. Although Region 7 had over 62 percent of the NPEP Priority Chemical quantity of pendimethalin in 2001, this represents an 80 percent decrease from the NPEP Priority Chemical quantity in 2000.

**Exhibit 129. Regional-Level Information for Pendimethalin**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
7	244,085	180,500	634,395	122,181	62.4	-49.9
4	0	0	20,402	61,613	31.5	-----
5	21,046	31,100	18,695	11,402	5.8	-45.8
2	0	0	6,316	346	0.2	-----
9	0	0	0	129	0.1	-----
6	0	5,565	0	0	0.0	-----
<b>TOTAL</b>	<b>265,131</b>	<b>217,165</b>	<b>679,808</b>	<b>195,671</b>	<b>100</b>	

*State Information*

Exhibit 130 shows the States that had NPEP Priority Chemical quantities of pendimethalin in 1998 to 2001. The States of Missouri and Florida had the majority of the NPEP Priority Chemical quantity of pendimethalin.

**Exhibit 130. State-Level Information for Pendimethalin**

STATE	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Missouri	241,185	174,000	630,405	111,401	56.9	-53.8
Florida	0	0	20,402	61,613	31.5	-----
Ohio	21,046	31,100	18,695	11,402	5.8	-45.8
Iowa	2,900	6,500	3,990	10,780	5.5	271.7
New Jersey	0	0	6,316	346	0.2	-----
California	0	0	0	129	0.1	-----
Arkansas	0	5,565	0	0	0.0	-----
<b>TOTAL</b>	<b>265,131</b>	<b>217,165</b>	<b>679,808</b>	<b>195,671</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Exhibit 131 shows the national NPEP Priority Chemical quantity (pounds) of pendimethalin by industry sector (1998 to 2001). The pesticides and agricultural chemicals, nec industry sector (SIC 2879) accounted for approximately 63 percent of the NPEP Priority Chemical quantity of pendimethalin in 2001.

**Exhibit 131. Industry Sector Information for Pendimethalin**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2879	Pesticides and agricultural chemicals, nec	246,318	180,500	640,379	122,342	62.5	-50.3
2875	Fertilizers, mixing only	18,813	31,100	18,695	52,126	26.6	177.1
2062	Cane sugar refining	0	0	0	20,889	10.7	-----
2869	Industrial organic chemicals, nec	0	0	332	185	0.1	-----
2874	Phosphatic fertilizers	0	0	0	129	0.1	-----
2061	Raw cane sugar	0	0	20,402	0	0	-----
5191	Farm supplies	0	5,565	0	0	0	-----
<b>TOTAL</b>		<b>265,131</b>	<b>217,165</b>	<b>679,808</b>	<b>195,671</b>	<b>100</b>	

**Biennial Report (BR) Data**

No waste codes were found to be associated with pendimethalin.

## **Conclusion**

From 1998-2001, the NPEP Priority Chemical quantity of pendimethalin reported to TRI decreased by over 26 percent. For all four years the majority of pendimethalin reported to TRI was treated and the remainder was land disposed.

Pendimethalin accounted for about 0.3 percent of the national total NPEP Priority Chemical quantity in 2001 with 195,671 pounds. Approximately 60 percent of this quantity was reported by a facility in Missouri (Region 7). Over the four years, this facility in Missouri has reported 60 to 90 percent of the total NPEP Priority Chemical quantity for pendimethalin.

The Pesticides and agricultural chemicals, nec industry sector (SIC 2879) accounted for approximately 60 percent of the NPEP Priority Chemical quantity of pendimethalin reported to TRI in 2001. No BR waste codes were associated with pendimethalin.

## Pentachlorobenzene

### Chemical Information

**CAS Number** - 608-93-5

**Alternate Names** - 1,2,3,4,5-pentachlorobenzene

**General Uses** - This chemical is used to make pentachloronitrobenzene, a fungicide. In addition, it has been and is currently used as a fire retardant.

**Potential Hazards** - Short-term exposure to this chemical can affect the central nervous system. Long-term exposure can affect the liver and kidneys and can cause tissue lesions.

### TRI Data

#### *National-Level Chemical Information*

Exhibit 132 shows the total NPEP Priority Chemical quantity (pounds) of pentachlorobenzene reported in 2000 to 2001. There was a significant increase in the NPEP Priority Chemical quantity of pentachlorobenzene in 2001.

**Exhibit 132. National-Level Information for Pentachlorobenzene**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
PENTACHLOROENZENE	-----	-----	239,852	411,227	0.6	--

#### *EPA Region Information*

Exhibit 133 shows the NPEP Priority Chemical quantity (pounds) of pentachlorobenzene for EPA Regions in 2000 to 2001. Almost the entire NPEP Priority Chemical quantity of pentachlorobenzene was in Region 6.

**Exhibit 133. Regional-Level Information for Pentachlorobenzene**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
6	-----	-----	239,768	410,991	99.9	71.4
8	-----	-----	0	170	0.0	--
5	-----	-----	76	66	0.0	-13.2
4	-----	-----	8	0	0.0	-100
<b>TOTAL</b>	-----	-----	<b>239,852</b>	<b>411,227</b>	<b>100</b>	

### State Information

Exhibit 134 shows the states that had NPEP Priority Chemical quantities of pentachlorobenzene in 2000 to 2001. Louisiana had most of the NPEP Priority Chemical quantity of pentachlorobenzene in 2001 and showed a significant increase compared to the NPEP Priority Chemical quantity in 2000.

**Exhibit 134. State-Level Information for Pentachlorobenzene**

STATE	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
Louisiana	-----	-----	118,629	410,991	99.94	246.4
Colorado	-----	-----	0	170	0.04	-----
Illinois	-----	-----	76	66	0.02	-13.2
Kentucky	-----	-----	8	0	0.00	-100
Texas	-----	-----	121,139	0	0.00	-100
TOTAL	-----	-----	239,852	411,227	100.0	

### Industry Sector (SIC Code) Information

Exhibit 135 shows the national NPEP Priority Chemical quantity (pounds) of pentachlorobenzene by industry sector (1998 to 2001). Virtually the entire NPEP Priority Chemical quantity of pentachlorobenzene is from the Alkalies and chlorine industry sector (SIC 2812).

**Exhibit 135. Industry Sector Information for Pentachlorobenzene**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (2000-2001)
2812	Alkalies and chlorine	0	0	239,768	410,991	99.94	71
2819	Industrial inorganic chemicals, nec	0	0	0	170	0.04	---
2865	Cyclic crudes and intermediates	0	0	76	66	0.02	-13
2869	Industrial organic chemicals, nec	0	0	8	0	0.00	-100
<b>TOTAL</b>		<b>0</b>	<b>0</b>	<b>239,852</b>	<b>411,227</b>	<b>100.0</b>	

### Biennial Report (BR) Data

#### National-Level Chemical Information

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain pentachlorobenzene reported in 1997, 1999 and 2001. The waste codes associated with pentachlorobenzene are—U183, F024, F025, K085, K149, K150, and K151. The quantity of hazardous waste stream(s) that may contain pentachlorobenzene decreased by about 44 percent from 1997 to 2001.

**Exhibit 136. National-Level Information for Pentachlorobenzene**

<b>Chemical</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% change</b>
Pentachlorobenzene	4,246,438,712	4,893,056,519	2,361,102,069	-44.4

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain pentachlorobenzene for each EPA region. Regions 7, 6, and 2 had the largest quantities.

**Exhibit 137. Regional-Level Information for Pentachlorobenzene**

<b>Region</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% of Total BR Qty (2001)</b>	<b>% Change (1997-2001)</b>
1	900	263,031	244	0.0	-72.9
2	382,214,772	530,482,101	309,908,112	13.1	-18.9
3	649,914	2,946,074	927,858	0.0	42.8
4	7,095,153	1,035,971,823	2,743,929	0.1	-61.3
5	15,115,327	12,563,962	11,493,312	0.5	-24.0
6	3,096,816,381	2,278,818,186	989,819,091	41.9	-68.0
7	744,487,296	1,026,498,313	1,041,013,979	44.1	39.8
8	0	5,277,265	4,022,248	0.2	-----
9	58,928	235,572	1,172,693	0.0	1,890.0
10	42	193	603	0.0	1,350.0
<b>TOTAL</b>	<b>4,246,438,712</b>	<b>4,893,056,519</b>	<b>2,361,102,069</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain pentachlorobenzene for each state that had over 1 percent of the 2001 total quantity. Kansas had over 44 percent of the total, Louisiana had over 35 percent, and New York had over 13 percent.

**Exhibit 138. State-Level Information for Pentachlorobenzene**

<b>State</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% of Total BR Qty (2001)</b>	<b>% Change (1997-2001)</b>
KS	743,874,592	1,024,843,732	1,040,137,748	44.5	39.8
LA	1,585,575,423	815,024,578	836,934,112	35.8	-47.2
NY	372,539,915	375,640,880	309,664,276	13.2	-16.9
TX	1,511,240,157	1,463,778,467	151,885,571	6.5	-89.9

### Industry Sector (NAICS Code) Information

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain pentachlorobenzene for each industry sector (NAICS code) that had over 1 percent of the 2001 total quantity. NAICS codes 325181 and 42261 collectively accounted for almost 90 percent of this total.

**Exhibit 139. Industry Sector-Level Information for Pentachlorobenzene**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
325181	Alkalies and Chlorine Manufacturing	396,610,067	395,556,908	1,348,433,328	57.1	240.0
42261	Plastics Materials and Basic Forms and Shapes Wholesalers	0	0	785,642,595	33.3	-----
325199	All Other Basic Organic Chemical Manufacturing	0	0	153,211,613	6.5	-----
562211	Hazardous Waste Treatment and Disposal	0	0	39,832,838	1.7	-----
32511	Petrochemical Manufacturing	3,772,137,576	4,254,223,184	30,917,810	1.3	-99.2

### Conclusion

Reporting of pentachlorobenzene to TRI began in 2000. There was a significant increase in the NPEP Priority Chemical quantity of pentachlorobenzene in 2001. For both years, virtually all of the pentachlorobenzene reported to TRI was treated.

Pentachlorobenzene accounted for about 0.3 percent of the national total NPEP Priority Chemical quantity in 2001 with 411,227 pounds. The majority of pentachlorobenzene reported to TRI in 2000 and 2001 was associated with facilities in Region 6 in the states of Louisiana and Texas.

Almost the entire NPEP Priority Chemical quantity of pentachlorobenzene reported to TRI is from the Alkalies and chlorine industry sector (SIC 2812). Facilities in NAICS codes 325181 (Alkalies and chlorine manufacturing) and 42261 (plastics materials and basic forms and shapes wholesalers) collectively accounted for almost 90 percent of the 2001 BR quantity of waste streams containing pentachlorobenzene. Therefore, the Alkalies and chlorine industry sector both reported pentachlorobenzene to TRI and waste streams containing pentachlorobenzene to BR.

## Pentachlorophenol

### Chemical Information

**CAS Number** - 87-86-5

**Alternate Names** - 2,3,4,5,6-pentachlorophenol

**General Uses** - This chemical was used as a biocide to kill small organisms and is now used as a wood preservative to protect wood from decay and insect attack.

**Potential Hazards** - This chemical is toxic; inhalation, ingestion, or skin contact may cause severe injury or death.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 140 shows the total NPEP Priority Chemical quantity (pounds) of pentachlorophenol reported in 1998 to 2001. From 1998 to 2001, the NPEP Priority Chemical quantity of pentachlorophenol decreased by almost 61 percent.

**Exhibit 140. National-Level Information for Pentachlorophenol**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
PENTACHLOROPHENOL	160,170	211,695	74,026	62,708	0.1	-60.8

#### *EPA Region Information*

Exhibit 141 shows the NPEP Priority Chemical quantity (pounds) of pentachlorophenol for each EPA Region in 1998 to 2001. In 2001, Regions 4 and 3 had more than 76 percent of the NPEP Priority Chemical quantity of pentachlorophenol.

**Exhibit 141. Regional-Level Information for Pentachlorophenol**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
4	146,304	159,889	17,263	27,818	44.4	-81.0
3	0	38,657	42,012	20,298	32.4	-----
6	11,368	6,277	4,397	8,049	12.8	-29.2
5	0	704	0	2,697	4.3	-----
10	1,185	2,757	6,949	1,862	3.0	57.1
9	1,300	1,500	3,400	756	1.2	-41.8
7	13	5	5	694	1.1	5,238.5
8	0	1,906	0	534	0.9	-----
<b>TOTAL</b>	<b>160,170</b>	<b>211,695</b>	<b>74,026</b>	<b>62,708</b>	<b>100.0</b>	

#### *State Information*

Exhibit 142 shows the states that had NPEP Priority Chemical quantities of pentachlorophenol in 1998 to 2001. Facilities within Maryland and South Carolina had over 53 percent of the 2001 NPEP Priority Chemical quantity of pentachlorophenol.

**Exhibit 142. State-Level Information for Pentachlorophenol**

STATE	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Maryland	0	38,657	42,012	20,298	32.4	-----
South Carolina	12,682	39,039	2,358	13,026	20.8	2.7
Arkansas	11,305	6,238	4,307	8,016	12.8	-29.1
Mississippi	103,579	57,858	3,039	7,230	11.5	-93.0
Alabama	18,286	57,364	6,359	4,233	6.8	-76.9
Minnesota	0	704	0	2,697	4.3	-----
Georgia	7,161	4,035	1,831	1,900	3.0	-73.5
North Carolina	4,596	1,593	3,676	1,429	2.3	-68.9
Oregon	526	2,757	5,221	1,034	1.6	96.6
Washington	0	0	1,728	828	1.3	-----
Missouri	13	5	5	694	1.1	5238.5
South Dakota	0	1,906	0	534	0.9	-----
Nevada	1,300	1,500	1,400	445	0.7	-65.8
California	0	0	2,000	311	0.5	-----
Louisiana	63	39	90	33	0.1	-47.6
Idaho	659	0	0	0	0.0	-100.0
<b>TOTAL</b>	<b>160,170</b>	<b>211,695</b>	<b>74,026</b>	<b>62,708</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Exhibit 143 shows the national NPEP Priority Chemical quantity (pounds) of pentachlorophenol by industry sector (1998 to 2001). The wood preserving industry (SIC 2491) and pesticides and agricultural chemicals, nec sector (SIC 2879) had the majority of the NPEP Priority Chemical quantity of pentachlorophenol in 2001.

**Exhibit 143. Industry Sector-Level Information for Pentachlorophenol**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2491	Wood preserving	160,170	173,038	31,572	42,386	67.6	-73.5
2879	Pesticides and agricultural chemicals, nec	0	0	0	20,298	32.4	-----
5169	Chemicals and allied products, nec	0	0	442	24	0.0	-----
2869	Industrial organic chemicals, nec	0	38,657	42,012	0	0.0	-----
<b>TOTAL</b>		<b>160,170</b>	<b>211,695</b>	<b>74,026</b>	<b>62,708</b>	<b>100.0</b>	

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain pentachlorophenol reported in 1997, 1999 and 2001 . The waste codes associated with pentachlorophenol are—D037, U124, F020, F021, F022, F023, F026, F027, F028, F032, K174, and K001. The quantity of hazardous waste stream(s) that may contain pentachlorophenol decreased by 84 percent from 1997 to 2001.

**Exhibit 144. National-Level Information for Pentachlorophenol**

Chemical	1997	1999	2001	% change
Dibenzofuran, Dioxins/Furans, Pentachlorophenol	2,408,460,052	1,443,336,266	386,209,301	-84.0

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain pentachlorophenol for each EPA region. Regions 4 and 5 had the largest quantities of hazardous waste stream(s) that may contain pentachlorophenol in 2001.

**Exhibit 145. Regional-Level Information for Pentachlorophenol**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	982,118	6,879,888	39,791	0.0	-95.9
2	8,655,953	52,887,492	361,891	0.1	-95.8
3	170,552	15,434,978	4,312,792	1.1	2,428.7
4	274,853,520	104,178,270	33,150,301	8.6	-87.9
5	47,508,502	71,099,552	52,434,978	13.6	10.4
6	10,751,853	15,025,822	13,109,239	3.4	21.9
7	21,368,911	10,316,496	19,726,789	5.1	-7.7
8	96,271,054	94,793,510	18,775,442	4.9	-80.5
9	3,835,674	12,807,975	8,987,866	2.3	134.3
10	5,740	331,943	370,086	0.1	6,347.5

### *State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain pentachlorophenol for each state that had over 1 percent of the 2001 total. Wyoming and Alabama accounted for approximately 35 percent of the total.

**Exhibit 146. State-Level Information for Pentachlorophenol**

<b>State</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% of Total BR Qty (2001)</b>	<b>% Change (1997-2001)</b>
OH	12,510,286	25,432,917	29,170,648	19.3	133.2
AL	23,908,153	35,665,394	21,847,821	14.4	-8.6
IN	27,852	6,985,470	15,012,321	9.9	53,800.3
MO	1,412,556	570,885	12,776,521	8.5	804.5
WY	95,907,847	82,045,313	11,882,143	7.9	-87.6
UT	7,864	8,136,099	6,792,304	4.5	86,272.1
KS	19,224,156	9,128,619	6,367,320	4.2	-66.9
AZ	5,339	6,894,230	6,279,666	4.2	117,518.8
MI	6,305,369	32,438,790	6,036,582	4.00	-4.3
GA	233,775,625	60,366,152	5,676,522	3.8	-97.6
LA	4,492,563	8,551,137	5,422,799	3.6	20.7
AR	2,134,345	3,821,313	4,814,221	3.2	125.6
VA	549	10,786,567	4,220,882	2.8	768,731
MS	3,963,202	4,718,946	3,976,283	2.6	0.3
TX	3,961,780	491,790	2,857,790	1.9	-27.9
CA	2,938,554	5,894,287	2,705,932	1.8	-7.9
IL	28,521,628	6,206,015	2,181,748	1.4	-92.4

### *Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain pentachlorophenol for each industry sector (NAICS code) that had more than 1 percent of the 2001 total. NAICS codes 562211 and 321114 accounted for approximately 66 percent of this total.

**Exhibit 147. Industry Sector-Level Information for Pentachlorophenol**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
562211	Hazardous Waste Treatment and Disposal	0	0	153,535,613	39.8	-----
321114	Wood Preservation	1,478,673,295	650,248,022	100,995,436	26.2	-93.2
482111	Line-Haul Railroads	575,505,529	492,262,261	70,579,560	18.3	-87.7
56292	Materials Recovery Facilities	0	0	16,300,394	4.2	-----
339999	All Other Miscellaneous Manufacturing	28	0	14,575,365	3.8	52,054,776.0
32731	Cement Manufacturing	146,682	69,079	13,079,608	3.4	8,817.0
56291	Remediation Services	0	0	4,640,442	1.2	-----

**Conclusion**

From 1998-2001, the NPEP Priority Chemical quantity of pentachlorophenol reported to TRI decreased by almost 61 percent. From 1998 to 2001, the percentage of pentachlorophenol that has been treated has increased from 60 to 90 percent.

Pentachlorophenol accounted for about 0.1 percent of the national total NPEP Priority Chemical quantity in 2001 with 62,708 pounds. Approximately, 40 to 60 percent of the total quantity of pentachlorophenol was reported to TRI by 4 facilities out of the approximately 20 that reported each year. These facilities were mostly located in Regions 3 and 4.

Facilities in the wood preserving industry (SIC 2491) and pesticides and agricultural chemicals, nec sector (SIC 2879) reported the majority of the NPEP Priority Chemical quantity of pentachlorophenol to TRI in 2001. Facilities in NAICS codes 562211 (hazardous waste treatment and disposal) and 321114 (wood preservation) accounted for approximately 66 percent of the 2001 BR quantity of waste streams containing pentachlorophenol.

## Phenanthrene

### Chemical Information

**CAS Number** - 85-01-8

**Alternate Names** - phenanthracene

**General Uses** - This chemical is used to make dyes, plastics, pesticides, explosives and drugs. It has also been used to make bile acids, cholesterol and steroids.

**Potential Hazards** - This chemical may cause irritation to the skin and respiratory tract. It emits acrid smoke and fumes when heated to decomposition.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 148 shows the total NPEP Priority Chemical quantity (pounds) of phenanthrene reported in 1998 to 2001. During the period 1998 to 2001, the NPEP Priority Chemical quantity of phenanthrene decreased by almost 77 percent.

**Exhibit 148. National-Level Information for Phenanthrene**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
PHENANTHRENE	908,982	488,994	1,007,277	210,249	0.3	-76.9

#### *EPA Region Information*

Exhibit 149 shows the NPEP Priority Chemical quantity (pounds) of phenanthrene for the EPA Regions in 1998 to 2001. In 2001, Regions 5 and 6 had most of the NPEP Priority Chemical quantity of phenanthrene.

**Exhibit 149. Regional-Level Information for Phenanthrene**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
6	751,642	172,446	798,301	119,796	57.0	-84.1
5	142,694	276,651	184,230	73,714	35.1	-48.3
3	7,750	26,397	5,577	13,176	6.3	70.0
4	2,187	1,842	6,245	1,356	0.6	-38.0
8	584	8,505	9,144	1,071	0.5	83.4
9	1,989	13	47	1,066	0.5	-46.4
10	376	2,184	2,143	60	0.0	-84.0
2	0	0	20	10	0.0	-----
7	1,760	956	1,570	0	0.0	-100.0
<b>TOTAL</b>	<b>908,982</b>	<b>488,994</b>	<b>1,007,277</b>	<b>210,249</b>	<b>100.0</b>	

### State Information

Exhibit 150 lists the states that had NPEP Priority Chemical quantities of phenanthrene in 1998 to 2001. Texas and Ohio had the majority of the NPEP Priority Chemical quantity of phenanthrene in 2001.

**Exhibit 150. State-Level Information for Phenanthrene**

STATE	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Texas	744,500	167,114	793,002	99,771	47.5	-86.6
Ohio	121,503	252,364	164,054	57,289	27.2	-52.8
Louisiana	7,142	5,159	4,401	19,297	9.2	170.2
Illinois	35	1,409	3,081	11,261	5.4	32,074.3
Pennsylvania	7,750	21,990	3,164	9,004	4.3	16.2
Indiana	21,057	22,877	17,036	5,159	2.5	-75.5
West Virginia	0	4,407	2,413	4,167	2.0	-----
California	1,989	13	47	1,066	0.5	-46.4
Alabama	1,030	1,842	5,901	985	0.5	-4.4
Arkansas	0	0	898	728	0.3	-----
Montana	326	252	601	668	0.3	104.9
Utah	235	8,231	8,525	376	0.2	60.0
North Carolina	1,157	0	110	371	0.2	-67.9
Washington	376	2,184	2,143	60	0.0	-84.0
North Dakota	23	22	18	27	0.0	17.4
New York	0	0	20	10	0.0	-----
Delaware	0	0	0	5	0.0	-----
Minnesota	0	0	59	5	0.0	-----
Iowa	1,760	956	1,570	0	0.0	-100.0
Michigan	99	1	0	0	0.0	-100.0
Oklahoma	0	173	0	0	0.0	-----
Tennessee	0	0	234	0	0.0	-----
<b>TOTAL</b>	<b>908,982</b>	<b>488,994</b>	<b>1,007,277</b>	<b>210,249</b>	<b>100.0</b>	

### Industry Sector (SIC Code) Information

Exhibit 151 shows the national NPEP Priority Chemical quantity (pounds) of phenanthrene by industry sector (1998 to 2001). The cyclic crudes and intermediates (SIC 2865) and industrial organic chemicals, nec sector (SIC 2869) had more than 77 percent of the NPEP Priority Chemical quantity of phenanthrene in 2001.

**Exhibit 151. Industry Sector Information for Phenanthrene**

<b>PRIMARY SIC CODE</b>	<b>SIC Description</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998-2001)</b>
2869	Industrial organic chemicals , nec	619,610	116,789	747,108	83,514	39.7	-86.5
2865	Cyclic crudes and intermediates	122,550	267,049	174,741	78,912	37.5	-35.6
2819	Industrial inorganic chemicals, nec	0	0	48,330	18,968	9.0	-----
2812	Alkalies and chlorine	0	0	0	10,955	5.2	-----
2911	Petroleum refining	145,633	79,573	27,799	7,210	3.4	-95.0
4925	Gas production/distribution	5,227	2,563	16	5,157	2.5	-1.3
3312	Blast furnaces and steel mills	8,069	15,140	3,403	3,165	1.5	-60.8
2822	Synthetic rubber	0	1,437	1,229	974	0.5	-----
2821	Plastics materials and resins	0	0	828	828	0.4	-----
2491	Wood preserving	0	0	110	371	0.2	-----
3334	Primary aluminum	6,133	4,084	2,143	195	0.1	-96.8
3255	Clay refractories	0	1,403	0	0	0.0	-----
3624	Carbon and graphite products	1,760	956	1,570	0	0.0	-100.0
<b>TOTAL</b>		<b>908,982</b>	<b>488,994</b>	<b>1,007,277</b>	<b>210,249</b>	<b>100.0</b>	

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain phenanthrene reported in 1997, 1999 and 2001 . The waste codes associated with phenanthrene are—F032, F034, F037, F038, F039, K001, K015, K019, K035, K048, K049, K051, K052, K087, K088, K169, K170, K171, and U051. The quantity of waste streams containing phenanthrene decreased by about 71 percent from 1997 to 2001.

**Exhibit 152. National-Level Information for Phenanthrene**

<b>Chemical</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>% change</b>
Phenanthrene	22,214,403,484	28,430,692,074	6,328,856,144	-71.5

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain phenanthrene for each EPA region. The regions with the largest quantities were Region 6 (over 3.7 billion pounds) and Region 2 (over 1 billion pounds).

**Exhibit 153. Regional-Level Information for Phenanthrene**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	911,209	6,786,953	74,626	0.0	-91.8
2	165,574,382	1,036,856,510	1,021,079,383	16.1	516.7
3	104,498,117	83,575,077	85,891,165	1.4	-17.8
4	1,984,219,697	807,196,001	297,016,638	4.7	-85.0
5	1,916,861,104	1,746,262,208	594,924,500	9.4	-69.0
6	5,598,467,513	5,684,702,433	3,790,634,709	59.9	-32.3
7	293,047,576	248,784,745	82,031,385	1.3	-72.0
8	627,358,586	558,035,476	99,937,497	1.6	-84.1
9	11,523,357,275	18,253,839,667	326,948,880	5.2	-97.2
10	108,026	4,653,004	30,317,361	0.5	27,965.0
<b>TOTAL</b>	<b>22,214,403,484</b>	<b>28,430,692,074</b>	<b>6,328,856,144</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain phenanthrene for each state that had over 1 percent of the 2001 total quantity. Louisiana had over 35 percent, Texas had almost 19 percent, and New York had about 15 percent of this total.

**Exhibit 154. State-Level Information for Phenanthrene**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
LA	4,082,552,855	3,083,792,783	2,126,462,178	35.3	-47.9
TX	1,414,255,258	1,819,652,288	1,131,859,815	18.8	-20.0
NY	88,520,281	595,176,687	909,668,279	15.1	927.6
AR	82,695,287	752,409,306	518,687,360	8.6	527.2
IN	1,669,905,700	1,372,314,734	320,866,669	5.3	-80.8
AZ	141,720	202,356,068	187,593,695	3.1	132,269.2
OH	84,727,173	197,005,113	155,281,306	2.6	83.3
CA	11,517,661,788	18,051,166,609	139,048,358	2.3	-98.8
AL	242,100,870	319,094,354	127,992,607	2.1	-47.1
NJ	74,369,213	415,208,084	107,654,518	1.8	44.8
IL	110,005,614	104,030,326	89,527,066	1.5	-18.6
WY	577,142,722	496,980,152	75,021,468	1.2	-87.0
KY	57,540,547	69,088,531	72,430,806	1.2	25.9
MS	63,941,381	60,044,517	64,973,907	1.1	1.6

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain phenanthrene for each industry sector (NAICS code) that accounted for over 1 percent of the 2001 total quantity.

**Exhibit 155. Industry Sector-Level Information for Phenanthrene**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
42261	Plastics Materials and Basic Forms and Shapes Wholesalers	0	0	1,919,287,256	30.3	-----
331312	Primary Aluminum Production	101,093,879	497,061,528	987,043,207	15.6	876.4
562211	Plastics Material and Resin Manufacturing	0	0	888,221,156	14.0	-----
325199	All Other Basic Organic Chemical Manufacturing	0	0	849,206,842	13.4	-----
32411	Petroleum Refineries	14,562,022,826	19,996,565,580	754,145,193	11.9	-94.8
321114	Wood Preservation	1,862,825,338	1,595,172,587	554,996,202	8.8	-70.2
56292	Materials Recovery Facilities	0	0	82,767,644	1.3	-----
482111	Line-Haul Railroads	575,682,012	510,027,125	70,622,471	1.1	-87.7

### Conclusion

During the period 1998-2001, reporting of the NPEP Priority Chemical phenanthrene to TRI decreased by almost 77 percent. The quantity of phenanthrene being disposed of on land, treated, and used for energy recovery has varied from year to year.

Phenanthrene accounted for about 0.3 percent of the national total NPEP Priority Chemical quantity in 2001 with 210,249 pounds. Approximately, 50 to 70 percent of the total quantity of phenanthrene was reported to TRI by 2 facilities out of the approximately 40 that reported each year. These facilities were mostly located in Regions 5 and 6.

Facilities in the cyclic crudes and intermediates (SIC 2865) and industrial organic chemicals, nec sector (SIC 2869) had more than 75 percent of the NPEP Priority Chemical quantity of phenanthrene in 2001. Facilities in NAICS codes 42261 (plastics materials and basic forms and shapes wholesalers) and 331312 (primary aluminum production) accounted for approximately 50 percent of the 2001 BR quantity of waste streams containing phenanthrene. Based on TRI and BR data, the chemical manufacturing, plastics, and metals industries appear to account for most of the phenanthrene.

## Polycyclic Aromatic Compounds (TRI PACs)

### Chemical Information

Polycyclic aromatic compounds (PACs), also known as polycyclic aromatic hydrocarbons (PAHs), are a group of over 100 different chemicals that are characterized by hydrogen and carbon arranged in two or more fused benzene rings. PACs originate from both natural and anthropogenic sources. As pure chemicals, PACs generally exist as colorless, white, or pale yellow-green solids. Most PACs do not occur alone in the environment; rather, they are found as a mixture of two or more PACs. The TRI PAC group includes the following chemicals: benzo(a)anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, benzo(j,k)fluoranthene, benzo(k)fluoranthene, benzo(rst)pentaphene, benzo(a)phenanthrene, benzo(a)pyrene, dibenz(a,h)acridine, dibenz(a,j)acridine, dibenzo(a,h)anthracene, dibenzo(c,g)carbazole, dibenzo(a,e)fluoranthene, dibenzo(a,e)pyrene, dibenzo(a,h)pyrene, dibenzo(a,l)pyrene, dimethylbenz(a)anthracene, indeno[1,2,3-cd]pyrene, methylcholanthrene, methylchrysene, nitropyrene

**General Uses** - Currently, most, if not all, PACs are byproducts of combustion or impurities and not created for use themselves. PACs may be formed as byproducts of both human and natural activities. They are produced or emitted during thermal processes such as the incomplete combustion of organic compounds, pyrolysis, or the processing of fossil fuels, bitumens, or nonfossil fuels. There are presently no known commercial uses for PACs. In the past, some PACs were produced in small quantities for research purposes or used in medicines or in the production of dyes, plastics, or pesticides. Other industrial contributors are the aerospace industry, coke ovens (various activities), petroleum refining, and primary aluminum production. PACs are used to conduct research, and to make dyes, plastics, pesticides and medicines. (EPA 2000/2001 TRI Public Data Release Report)

**Potential Hazards** - PACs are harmful by ingestion, inhalation and skin absorption. In addition, most PACs emit toxic fumes when heated to decomposition.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 156 shows the total NPEP Priority Chemical quantity (pounds) of the TRI PAC Group in 1998 to 2001.<sup>2</sup> From 1998 to 2001, there was a 42 percent increase in the NPEP Priority Chemical quantity of the TRI PAC Group; however, there was a significant decrease from the 2000 NPEP Priority Chemical quantity.

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<sup>2</sup> Some facilities may have mistakenly reported on their TRI Form R the threshold quantity of TRI PACs and Benzo(g,h,i)perylene, contained in fuel oil, as a quantity released or as a quantity treated onsite. As such, over-reporting of quantities released to the environment or treated, for these chemicals, may mean that the NPEP Priority Chemical quantity is likewise over-stated. It is important to note that TRI chemicals in fuels which are destroyed during the combustion process are not considered treated. TRI chemicals are only considered treated if they are part of a waste stream and are then managed as a waste. EPA has notified reporters of these potential problems. As facilities submit corrected TRI Form Rs to correct any such over-reporting of this chemical, the NPEP Priority Chemical quantities may decrease in subsequent updates of this Trends Report.

**Exhibit 156. National-Level Information for PACs**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
POLYCYCLIC AROMATIC COMPOUNDS	6,937,047	7,153,354	12,323,320	9,679,426	13.8	39.5

*EPA Region Information*

Exhibit 157 shows the NPEP Priority Chemical quantity (pounds) of the TRI PACs for the EPA Regions in 1998 to 2001. Regions 4, 6, 3, and 10 had most of the NPEP Priority Chemical quantity for the TRI PACs in 2001.

**Exhibit 157. Regional-Level Information for TRI PACs**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
4	4,843,013	4,399,652	6,457,404	4,576,293	47.3	-5.5
6	345,885	700,554	1,982,859	2,114,860	21.8	511.4
3	78,820	102,972	505,139	988,963	10.2	1,154.7
10	1,071,535	1,476,969	2,058,896	973,674	10.1	-9.1
5	518,288	367,682	752,735	710,455	7.3	37.1
2	63,335	72,862	188,929	187,512	1.9	196.1
1	1,778	25,708	204,855	67,762	0.7	3,711.1
8	1,968	945	156,587	28,328	0.3	1,339.4
7	2,458	1,410	10,427	25,701	0.3	945.6
9	9,967	4,600	5,489	5,878	0.1	-5.5
<b>TOTAL</b>	<b>6,937,047</b>	<b>7,153,354</b>	<b>12,323,320</b>	<b>9,679,426</b>	<b>100.0</b>	

*State Information*

Exhibit 158 lists the states that had NPEP Priority Chemical quantities (pounds) of the TRI PACs in 1998 to 2001. Tennessee had the largest NPEP Priority Chemical quantity of TRI PACs in 2001.

**Exhibit 158. State-Level Information for TRI PACs**

STATE	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Tennessee	4,073,202	4,158,962	4,810,879	3,210,381	33.2	-21.2
Louisiana	18,139	36,347	1,044,410	1,058,913	10.9	5,737.8
Washington	1,037,533	1,401,516	2,033,691	944,566	9.8	-9.0
Kentucky	173,934	189,949	723,912	705,998	7.3	305.9
Maryland	11,714	10,909	288,460	624,432	6.5	5,230.6
Texas	54,569	401,834	458,933	587,122	6.1	975.9
Indiana	40,532	37,909	389,401	353,859	3.7	773.0
Pennsylvania	31,244	64,670	83,588	346,344	3.6	1,008.5
Arkansas	230,876	219,889	259,218	240,705	2.5	4.3
Oklahoma	42,301	42,484	220,296	228,101	2.4	439.2
North Carolina	523,004	6,798	488,454	223,261	2.3	-57.3
Mississippi	0	1	108,252	193,640	2.0	-----
Ohio	327,145	200,452	177,752	174,868	1.8	-46.5

STATE	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
South Carolina	48,843	17,750	169,115	160,121	1.7	227.8
New York	62,848	58,500	154,443	150,147	1.6	138.9
Minnesota	35,760	32,713	41,164	104,774	1.1	193.0
Illinois	114,840	96,608	143,984	76,550	0.8	-33.3
Massachusetts	1,778	25,708	101,923	50,250	0.5	2,726.2
Alabama	24,030	26,192	67,795	38,665	0.4	60.9
Puerto Rico	0	0	29,098	35,590	0.4	-----
Oregon	34,002	75,453	24,538	28,052	0.3	-17.5
Florida	0	0	5,989	22,940	0.2	-----
Georgia	0	0	83,008	21,288	0.2	-----
Wyoming	0	0	151,763	20,671	0.2	-----
Missouri	0	0	945	17,986	0.2	-----
West Virginia	31,524	26,571	124,473	16,932	0.2	-46.3
New Hampshire	0	0	54,440	9,880	0.1	-----
Iowa	2,430	1,320	9,221	7,514	0.1	209.2
California	4,867	4,480	5,150	5,664	0.1	16.4
Utah	131	647	2,386	4,380	0.0	3,243.5
Connecticut	0	0	616	3,961	0.0	-----
Maine	0	0	38,236	3,633	0.0	-----
New Jersey	402	14,339	5,373	1,775	0.0	341.5
Colorado	0	0	375	1,220	0.0	-----
South Dakota	0	0	1,164	1,170	0.0	-----
Alaska	0	0	667	1,051	0.0	-----
Montana	1,797	298	899	883	0.0	-50.8
Virginia	2,918	41	7,545	834	0.0	-71.4
Delaware	1,420	781	1,073	421	0.0	-70.4
Wisconsin	0	0	350	308	0.0	-----
Kansas	28	90	71	200	0.0	613.0
American Samoa	0	0	133	128	0.0	-----
Michigan	11	0	84	96	0.0	772.7
Arizona	0	0	24	46	0.0	-----
Rhode Island	0	0	9,622	35	0.0	-----
Hawaii	0	120	41	31	0.0	-----
New Mexico	0	0	2	20	0.0	-----
Nevada	5,100	0	1	6	0.0	-99.9
Idaho	0	0	0	5	0.0	-----
North Dakota	40	0	0	4	0.0	-89.9
Guam	0	0	140	3	0.0	-----
Vermont	0	0	18	2	0.0	-----
Nebraska	0	0	190	2	0.0	-----
Virgin Islands	85	23	15	0	0.0	-100.0
<b>TOTAL</b>	<b>6,937,047</b>	<b>7,153,354</b>	<b>12,323,320</b>	<b>9,679,426</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Exhibit 159 shows the industry sectors that reported a NPEP Priority Chemical quantity (pounds) of over 100,000 pounds of the TRI PACs in 1998 to 2001. The carbon and graphite products sector (SIC 3624) and the primary aluminum sector (SIC 3334) had the majority of the NPEP Priority Chemical quantity of the TRI PACs in 2001.

**Exhibit 159. Industry Sector Information for PACs**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
3624	Carbon and graphite products	5,093,430	4,657,608	5,819,944	3,853,043	42.4	-24.4
3334	Primary Aluminum	1,366,978	1,585,212	2,739,674	1,522,996	16.7	11.4
2911	Petroleum refining	81,287	97,851	692,558	770,672	8.5	848.1
2895	Carbon Black	0	0	857,517	686,403	7.5	-----
2062	Cane sugar refining	0	0	276,000	610,000	6.7	-----
2491	Wood preserving	0	0	306,245	583,479	6.4	-----
2992	Lubricating oils and greases	0	0	356,394	318,495	3.5	-----
2869	Industrial organic chemicals, nec	484	6,686	236,762	293,575	3.2	60,556.0
2999	Petroleum and coal products, nec	4,639	6,950	64,904	180,276	2.0	3786.1
2865	Cyclic crudes and intermediates	174,416	225,191	171,883	145,944	1.6	-16.3
3011	Tires and inner tubes	102,790	65,440	98,062	128,567	1.4	25.1
<b>TOTAL</b>		<b>6,937,047</b>	<b>7,153,354</b>	<b>12,323,320</b>	<b>9,679,426</b>		

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain TRI PACs reported in 1997, 1999 and 2001 . The waste codes associated with TRI PACs group were—U018, U022, U063, U064, U094, F032, F034, F037, F038, K001, K035, K048, K049, K050, K051, K052, K060, K141, K142, K143, K144, K145, K147, K148, and K170. The quantity of waste streams containing TRI PACs decreased by about 89 percent from 1997 to 2001.

**Exhibit 160. National-Level Information for PACs**

Chemical	1997	1999	2001	% change
PAH Group	18,885,583,895	23,667,143,302	2,160,242,734	-88.6

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain TRI PACs for the EPA regions. Regions 5 and 6 had the largest quantities in 2001.

**Exhibit 161. Regional-Level Information for PACs**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	331,320	3,895,341	31,986	0.0	-90.3
2	741,094,698	595,289,258	105,212,613	4.9	-85.8
3	86,202,328	71,631,294	68,829,401	3.2	-20.2
4	1,920,966,905	752,837,301	218,154,842	10.1	-88.6
5	1,900,124,635	1,986,071,284	628,923,309	29.1	-66.9
6	1,732,702,819	1,094,682,034	632,131,119	29.3	-63.5
7	360,629,073	354,251,603	79,612,763	3.7	-77.9
8	619,377,374	552,743,754	103,438,638	4.8	-83.3
9	11,524,002,033	18,251,285,763	315,865,316	14.6	-97.3
10	152,710	4,455,670	8,042,748	0.4	5,166.7
<b>TOTAL</b>	<b>18,885,583,895</b>	<b>23,667,143,302</b>	<b>2,160,242,734</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain TRI PACs for each state making up more than 1 percent of the total 2001 quantity. Facilities in Indiana, Texas, and Arkansas accounted for over 40 percent of this total.

**Exhibit 162. State-Level Information for PACs**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
IN	1,659,736,570	1,617,074,071	363,082,713	17.8	-78.1
TX	1,531,051,223	497,930,130	243,705,100	11.9	-84.1
AR	3,576,934	398,713,061	217,737,216	10.7	5987.3
AZ	156,589	202,354,488	187,593,820	9.2	119700.5
LA	190,660,197	171,074,679	157,992,965	7.7	-17.1
OH	84,605,697	199,002,535	153,613,542	7.5	81.6
CA	11,518,275,349	18,048,609,038	128,110,404	6.3	-98.9
NJ	74,155,624	570,817,989	104,181,172	5.1	40.5
IL	111,066,609	99,045,886	84,666,729	4.1	-23.8
AL	196,425,087	283,109,675	83,866,657	4.1	-57.3
WY	577,195,502	496,746,516	74,079,744	3.6	-87.2
KS	59,371,740	105,844,200	72,164,553	3.5	21.5
KY	42,925,357	54,982,289	51,954,283	2.5	21.0
MS	65,700,125	58,755,589	50,969,100	2.5	-22.4
VA	39,718,094	32,434,727	49,014,296	2.4	23.4

### Industry Sector (NAICS Code) Information

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain TRI PACs for each industry sector (NAICS code) that accounted for more than 1 percent of the total 2001 quantity. Three NAICS codes, 562211, 32411, and 321114, accounted for approximately 87 percent of this total.

**Exhibit 163. Industry Sector-Level Information for PACs**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
32411	Petroleum Refineries	14,600,889,461	20,190,710,727	753,135,535	34.9	-94.8
562211	Hazardous Waste Treatment and Disposal	0	0	581,277,064	26.9	-----
321114	Wood Preservation	1,862,815,113	1,451,964,683	553,941,629	25.6	-70.3
56292	Materials Recovery Facilities	0	0	89,661,227	4.2	-----
482111	Line-Haul Railroads	575,574,298	510,016,900	70,622,471	3.3	-87.7
3211	Sawmills and Wood Preservation	0	0	47,870,891	2.2	-----

### Conclusion

From 1998-2001, there was a 42 percent increase in the NPEP Priority Chemical quantity of the TRI PAC Group reported to TRI; however, there was a significant decrease from the 2000 NPEP Priority Chemical quantity. For all four years, approximately 50 to 60 percent of the total quantity of TRI PACS reported to TRI was used for energy recovery. The remainder of the quantity was either land disposed or treated.

The TRI PAC group accounted for about 14 percent of the national total NPEP Priority Chemical quantity in 2001 with 9,679,426 pounds. Regions 3 (Kentucky), 4 (Tennessee), 6 (Louisiana), and 10 (Washington) had most of the NPEP Priority Chemical quantity for the TRI PACs in 2001.

The carbon and graphite products sector (SIC 3624) and the primary aluminum sector (SIC 3334) had the majority of the NPEP Priority Chemical quantity of the TRI PACs in 2001. Facilities in NAICS codes 562211 (hazardous waste treatment and disposal), 32411 (petroleum refineries), and 321114 (wood preservation), accounted for approximately 87 percent of the 2001 BR quantity of waste streams containing TRI PACS. No correlation between the TRI and BR data was apparent for TRI PACS.

## Quintozene

### Chemical Information

It is a white or colorless crystalline solid with a characteristic pleasant odor.

**CAS Number** - 82-68-8

**Alternate Names** - nitropentachlorobenzene, quintobenzene, pentachloronitrobenzene

**General Uses** - Quintozene is used as a fungicide for seed treatment, soil application, and as a slime inhibitor in industrial waters. It is also used to prevent the growth of fungi on grass, lawn flowers, ornamental crops, shrubs and in gardens.

**Potential Hazards** - This chemical is harmful if swallowed, inhaled or absorbed through the skin. It may cause irritation. In addition, this chemical emits toxic fumes of chlorine, carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride gas and phosgene when heated to decomposition.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 164 shows the total NPEP Priority Chemical quantity (pounds) of quintozene reported in 1998 to 2001. During this period, there was a 38 percent increase in the NPEP Priority Chemical quantity of quintozene.

**Exhibit 164. National-Level Information for Quintozene**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
QUINTOZENE	355,968	222,854	573,402	492,235	0.7	38.3

#### *EPA Region Information*

Exhibit 165 shows the NPEP Priority Chemical quantity (pounds) of quintozene for the EPA Regions in 1998 to 2001. Regions 6 and 9 had most of the NPEP Priority Chemical quantity of quintozene in 2001.

**Exhibit 165. Regional-Level Information for Quintozene**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
6	0	0	262,247	275,976	56.1	-----
9	342,800	214,728	296,406	205,982	41.8	-39.9
5	2,824	5,683	10,398	7,716	1.6	173.2
7	7,442	0	3,600	1,630	0.3	-78.1
4	2,902	2,443	751	931	0.2	-67.9
<b>TOTAL</b>	<b>355,968</b>	<b>222,854</b>	<b>573,402</b>	<b>492,235</b>	<b>100.0</b>	

*State Information*

Exhibit 166 lists the states that had NPEP Priority Chemical quantities (pounds) for quitozene in 1998 to 2001. In 2001, Arkansas and California accounted for the majority of the NPEP Priority Chemical quantity of quitozene.

**Exhibit 166. State-Level Information for Quitozene**

STATE	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Arkansas	0	0	262,247	275,976	56.1	-----
California	342,800	214,728	296,406	205,982	41.8	-39.9
Ohio	2,824	5,683	10,398	7,716	1.6	173.2
Iowa	7,442	0	3,600	1,630	0.3	-78.1
Georgia	2,902	2,443	751	931	0.2	-67.9
<b>TOTAL</b>	<b>355,968</b>	<b>222,854</b>	<b>573,402</b>	<b>492,235</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Exhibit 167 shows the national NPEP Priority Chemical quantity (pounds) of quitozene by industry sector (1998 to 2001). The air, water, solid waste management sector (SIC 9511) and the pesticides and agricultural chemicals, nec sector (SIC 2879) had most of the NPEP Priority Chemical quantity of quitozene.

**Exhibit 167. Industry Sector Information for Quitozene**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
9511	Air, water, solid waste management	0	0	262,247	275,976	56.1	-----
2879	Pesticides and agricultural chemicals, nec	353,144	217,171	300,757	208,543	42.4	-41.0
2875	Fertilizers, mixing only	2,824	5,683	10,398	7,716	1.6	173.2
<b>TOTAL</b>		<b>355,968</b>	<b>222,854</b>	<b>573,402</b>	<b>492,235</b>	<b>100</b>	

## Biennial Report (BR) Data

### *National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain quitozene reported in 1997, 1999 and 2001. The waste code associated with quitozene was—U185. The quantity of hazardous waste stream(s) that may contain quitozene decreased by almost 87 percent from 1997 to 2001.

**Exhibit 168. National-Level Information for Quitozene**

Chemical	1997	1999	2001	% change
Quitozene	163,333,119	40,390,362	21,437,560	-86.9

### *EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain quitozene for each EPA region. Region 5 had approximately 88 percent of the 2001 total quantity.

**Exhibit 169. Regional-Level Information for Quitozene**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	3,504	127,277	1,113	0.0	-68.2
2	157,319,645	22,122,472	32,005	0.1	-100.0
3	4,598	40,609	19,253	0.1	318.8
4	335,382	222,077	116,899	0.5	-65.1
5	4,370,139	13,809,177	18,783,388	87.6	329.8
6	55,923	2,449,773	1,418,941	6.6	2437.3
7	741,859	585,934	352,713	1.6	-52.5
8	7,380	1,010,708	704,627	3.3	9447.2
9	494,669	22,335	8,622	0.0	-98.3
10	21	0	0	0.0	-100.0
<b>TOTAL</b>	<b>163,333,119</b>	<b>40,390,362</b>	<b>21,437,560</b>	<b>100.0</b>	

### *State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain quitozene for each state that had over 1 percent of the total 2001 quantity. Ohio accounted for more than 55 percent, and Indiana had over 33 percent of this total.

**Exhibit 170. State-Level Information for Quintozene**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
OH	4,347,327	9,792,243	11,714,931	55.3	169.5
IN	0	4,006,958	7,056,779	33.3	-----
AR	5,356	18,615	751,057	3.5	13,922.7
UT	0	1,010,697	697,412	3.3	-----
LA	50,567	2,417,092	667,710	3.2	1,220.4
NE	337,266	279,376	282,703	1.3	-16.2

*Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain quintozene for each industry sector (NAICS code) for each code that accounted for more than 1 percent of the 2001 total quantity. Three industry sectors, NAICS codes 56292, 339999, and 562211, accounted for approximately 91 percent of this total.

**Exhibit 171. Industry Sector-Level Information for Quintozene**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
56292	Materials Recovery Facilities	0	0	8,149,593	38.0	-----
339999	All Other Miscellaneous Manufacturing	0	0	7,056,779	32.9	-----
562211	Hazardous Waste Treatment and Disposal	0	0	4,393,080	20.5	-----
32532	Pesticide and Other Agricultural Chemical Manufacturing	609,844	227,536	642,394	3.0	5.3
54162	Environmental Consulting Services	0	0	555,113	2.6	-----
32731	Cement Manufacturing	21,297	11,497	464,831	2.2	2,082.6

**Conclusion**

From 1998-2001, there was a 38 percent increase in the NPEP Priority Chemical quantity of quintozene reported to TRI. In 1998, 1999, and 2000, more than 95 percent of the quintozene reported to TRI was being used for energy recovery. In 2001, only 42 percent was being used for energy recovery and 57 percent was being treated.

Quintozene accounted for about 0.7 percent of the national total NPEP Priority Chemical quantity in 2001 with 492,235 pounds. In 2000 and 2001, the majority of the NPEP Priority Chemical quantity of quintozene was reported to TRI by one facility. In 2000 and 2001, two facilities accounted for the majority of the NPEP Priority Chemical quantity of quintozene reported to TRI.

Facilities in the air, water, solid waste management sector (SIC 9511) and the pesticides and agricultural chemicals, nec sector (SIC 2879) reported the majority of the NPEP Priority Chemical quantity of quintozene to TRI in 2001. Facilities in three industry sectors, NAICS codes 56292 (materials recovery facilities), 339999 (all other miscellaneous manufacturing), and 562211 (hazardous waste treatment and disposal), accounted for approximately 91 percent of the 2001 BR quantity of waste streams containing quintozene. There appears to be a correlation between TRI and BR data regarding the reporting of quintozene by waste management industry sectors.

## 1,2,4-Trichlorobenzene

### Chemical Information

**CAS Number** - 120-82-1

**Alternate Names** - 1,2,4-trichlorobenzol

**General Uses** - This chemical is used as an intermediate or building block to make herbicides. It is also used as a solvent and dielectric fluid, a degreaser, and as a lubricant.

**Potential Hazards** - This chemical is toxic; inhalation, ingestion, or skin contact may cause sever injury or death. It is also combustible.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 172 shows the total quantity (pounds) of 1,2,4-trichlorobenzene reported in 1998 to 2001. 1,2,4-Trichlorobenzene represented 3 percent of the total NPEP Priority Chemical quantity reported in 2001. There was a significant increase in 1,2,4-trichlorobenzene during the period 1998 to 2001.

**Exhibit 172. National-Level Information for 1,2,4-Trichlorobenzene**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
1,2,4-TRICHLOROBENZENE	852,608	1,371,494	1,164,188	2,163,028	3.1	153.7

#### *EPA Region Information*

Exhibit 173 represents the quantity (pounds) of 1,2,4-trichlorobenzene for each EPA Region in 1998 to 2001. Region 6 had the highest reported quantity, over 1.7 million pounds, in 2001. This represents approximately 82 percent of the national quantity of 1,2,4-trichlorobenzene.

**Exhibit 173. Regional-Level Information for 1,2,4-Trichlorobenzene**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
6	601,925	878,560	849,595	1,763,306	81.5	192.9
3	70,065	128,461	128,570	255,298	11.8	264.4
5	90,060	100,400	92,133	100,001	4.6	11.0
4	79,630	220,539	61,941	38,267	1.8	-51.9
9	10,928	43,534	31,949	6,155	0.3	-43.7
1	0	0	0	1	0.0	----
<b>TOTAL</b>	<b>852,608</b>	<b>1,371,494</b>	<b>1,164,188</b>	<b>2,163,028</b>	<b>100.0</b>	

### *State Information*

Louisiana had the largest quantity of 1,2,4-trichlorobenzene in 2001. Exhibit 174 presents information for the remaining states that reported 1,2,4-trichlorobenzene in 1998 to 2001.

**Exhibit 174. State-Level Information for 1,2,4-Trichlorobenzene**

<b>STATE</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>% of Total PC Qty (2001)</b>	<b>% Change (1998- 2001)</b>
Louisiana	411,156	403,928	354,900	1,503,461	69.5	265.7
West Virginia	5,025	7,563	6,032	231,708	10.7	4511.1
Texas	190,769	474,632	492,167	221,389	10.2	16.1
Illinois	71,000	97,000	92,133	100,000	4.6	40.8
Arkansas	0	0	0	38,300	1.8	---
Kentucky	6,160	38,890	39,729	36,386	1.7	490.7
Virginia	41,585	31,491	33,357	23,588	1.1	-43.3
California	10,928	43,534	31,949	6,155	0.3	-43.7
South Carolina	1,393	488	499	1,876	0.1	34.7
Oklahoma	0	0	2,528	156	0.0	---
Alabama	5	4	5	5	0.0	0.0
Pennsylvania	0	0	1	2	0.0	---
Indiana	0	0	0	1	0.0	---
Rhode Island	0	0	0	1	0.0	---
Delaware	23,455	89,407	89,180	0	0.0	-100.0
Mississippi	37,750	98,750	0	0	0.0	-100.0
North Carolina	11,610	0	0	0	0.0	-100.0
Ohio	19,060	3,400	0	0	0.0	-100.0
Tennessee	22,712	82,407	21,708	0	0.0	-100.0
<b>TOTAL</b>	<b>852,608</b>	<b>1,371,494</b>	<b>1,164,188</b>	<b>2,163,028</b>	<b>100.0</b>	

### *Industry Sector (SIC Code) Information*

Exhibit 175 presents the national quantities (pounds) of 1,2,4-trichlorobenzene by industry sector (1998 to 2001). The primary SIC codes of the facilities that had the largest quantities of 1,2,4-trichlorobenzene were 2812 (Alkalies and chlorine), 2819 (industrial inorganic chemicals, nec), and 2865 (cyclic crudes and intermediates).

**Exhibit 175. Industry Sector-Level Information for 1,2,4-Trichlorobenzene**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2812	Alkalies and chlorine	416,181	389,567	360,932	1,735,169	80	317
2819	Industrial inorganic chemicals, nec	61,260	448,490	426,566	152,930	7	150
2865	Cyclic crudes and intermediates	119,115	228,407	220,762	136,370	6	14
2493	Reconstituted wood products	75,114	38,591	62,556	61,564	3	-18
9511	Air, water, and solid waste management	0	0	0	38,300	2	-----
2231	Broadwoven fabric mills, wool	53,195	31,491	33,357	23,588	1	-56
3679	Electronic components, nec	583	25,510	31,336	5,089	0	773
2911	Petroleum refining	0	0	2,528	3,956	0	-----
2879	Pesticides and agric. Chemicals, nec	54,395	9,295	3,045	3,095	0	-94
2843	Surface active agents	0	0	499	1,876	0	-----
2899	Chemical preparations, nec	2,388	9,812	613	1,066	0	-55
2869	Industrial organic chemicals, nec	23,277	82,701	21,993	21	0	-100
2851	Paints and allied products	0	0	1	2	0	-----
5171	Petroleum bulk stations and terminals	0	180	0	2	0	-----
2621	Paper mills	37,750	98,750	0	0	0	-100
3674	Semiconductors and related devices	9,350	8,700	0	0	0	-100
<b>TOTAL</b>		<b>852,608</b>	<b>1,371,494</b>	<b>1,164,188</b>	<b>2,163,028</b>	<b>100</b>	

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of 1,2,4-trichlorobenzene reported in 1997, 1999 and 2001. The waste codes associated with 1,2,4-trichlorobenzene are—F024, F025, K085, and F150. The quantity of the hazardous waste stream(s) that may contain 1,2,4-trichlorobenzene decreased by approximately 47 percent from 1997 to 2001.

**Exhibit 176. National-Level Information for 1,2,4-Trichlorobenzene**

Chemical	1997	1999	2001	% change
1,2,4-Trichlorobenzene	3,862,899,859	3,362,505,124	2,031,127,229	-47.4

### *EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain 1,2,4-trichlorobenzene for each EPA region. Regions 6 and 7 had the largest quantities in all three years.

**Exhibit 177. Regional-Level Information for 1,2,4-Trichlorobenzene**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	900	180,070	6	0.0	-99.3
2	9,753,314	66,425,384	141,676	0.0	-98.5
3	649,914	2,915,387	927,260	0.0	42.7
4	1,875,345	666,026	2,671,985	0.1	42.5
5	10,318,584	6,303,067	6,810,284	0.3	-34.0
6	3,096,816,381	2,269,841,171	988,999,795	48.7	-68.1
7	743,426,472	1,013,145,452	1,029,325,038	50.7	38.5
8	0	2,793,707	2,045,693	0.1	---
9	58,928	234,731	205,089	0.0	248.0
10	21	129	402	0.0	1,833.4
<b>TOTAL</b>	<b>3,862,899,859</b>	<b>3,362,505,124</b>	<b>2,031,127,229</b>	<b>100.0</b>	

### *State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain 1,2,4-trichlorobenzene for each state that had over 1 percent of the 2001 total quantity. Only three states, Kansas, Louisiana, and Texas had over 1 percent, with the majority of the quantity being reported by facilities in Louisiana and Texas.

**Exhibit 178. State-Level Information for 1,2,4-Trichlorobenzene**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
KS	743,034,012	1,012,409,039	1,028,910,212	51.0	38.5
LA	1,585,575,423	806,062,167	836,712,810	41.5	-47.2
TX	1,511,240,157	1,463,778,467	151,885,571	7.5	-89.9

### *Industry Sector (NAICS Code) Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) reported in 1997, 1999 and 2001 that may contain 1,2,4-trichlorobenzene for each industry sector (NAICS code) that reported more than 1 percent of the 2001 total quantity. Approximately 90 percent of the total 2001 quantity was reported by facilities in NAICS codes 325181 and 42261.

**Exhibit 179. Industry Sector-Level Information for 1,2,4-Trichlorobenzene**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
325181	Alkalies and Chlorine Manufacturing	24,148,610	19,956,500	1,038,796,468	51.2	4201.7
42261	Plastics Materials and Basic Forms and Shapes Wholesalers	0	0	785,642,595	38.7	-----
325199	All Other Basic Organic Chemical Manufacturing	0	0	153,211,015	7.5	-----
32511	Petrochemical Manufacturing	3,768,275,416	3,219,282,604	30,917,810	1.5	-99.2
562211	Hazardous Waste Treatment and Disposal	0	0	20,986,979	1.0	-----

**Conclusion**

There was a significant increase in reporting of 1,2,4-trichlorobenzene to TRI during the period 1998-2001. The majority of facilities reporting 1,2,4-trichlorobenzene to TRI have been located in Region 6. Approximately 20 facilities have reported 1,2,4-trichlorobenzene to TRI each year from 1998 to 2001.

1,2,4-Trichlorobenzene accounted for about 3 percent of the national total NPEP Priority Chemical quantity in 2001 with 2,163,028 pounds. The majority of this amount was treated.

SIC codes of the facilities that reported the largest quantities of 1,2,4-trichlorobenzene to TRI in 2001 were 2812 (Alkalies and chlorine), 2819 (industrial inorganic chemicals, nec), and 2865 (cyclic crudes and intermediates). Approximately 90 percent of the total BR 2001 quantity of waste streams containing 1,2,4-trichlorobenzene was reported by facilities in NAICS codes 325181 (Alkalies and chlorine manufacturing) and 42261 (plastics materials, and basic forms and shapes). There is a correlation in that facilities in the Alkalies and chlorine manufacturing industries reported much of the 1,2,4-trichlorobenzene.

## 2,4,5 - Trichlorophenol

### Chemical Information

**CAS Number** - 95-95-4

**Alternate Names** - Collunosol, Dowicide 2

**General Uses** - This chemical is used as a fungicide to destroy or prevent fungi from growing. It is also used as a herbicide and to make other pesticides.

**Potential Hazards** - If your skin comes into contact with this chemical, it may burn. It can also irritate your eyes, nose, pharynx and lungs.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 180 shows the total quantity (pounds) of 2,4,5-trichlorophenol reported in 1998 to 2001. The quantity of 2,4,5-trichlorophenol represented less than 0.1 percent of the 2001 NPEP Priority Chemical total. The NPEP Priority Chemical quantity for 2,4,5-trichlorophenol has remained relatively consistent, between 20,000 and 32,500 from 1998 to 2001.

#### **Exhibit 180. National-Level Information for 2,4,5 - Trichlorophenol**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2,4,5-TRICHLOROPHENOL	23,226	26,098	32,443	20,657	<0.1	-11.1

#### *EPA Region Information*

Exhibit 181 presents EPA Region information regarding the quantity (pounds) of 2,4,5-trichlorophenol reported in 1998 to 2001. Only facilities in Region 2 had a NPEP Priority Chemical quantity of 2,4,5-trichlorophenol.

#### **Exhibit 181. Regional-Level Information for 2,4,5 - Trichlorophenol**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2	23,226	26,098	32,443	20,657	100	-11

#### *State Information*

Exhibit 182 shows that the facilities that report 2,4,5-trichlorophenol are located in New Jersey.

**Exhibit 182. State-Level Information for 2,4,5 - Trichlorophenol**

State	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
New Jersey	23,226	26,098	32,443	20,657	100	-11

*Industry Sector (SIC Code) Information*

As noted on Exhibit 183, the NPEP Priority Chemical quantity of 2,4,5-trichlorophenol is associated only with facilities in SIC code 2869 (industrial organic chemicals, nec) in 1998 to 2001.

**Exhibit 183. Industry Sector-Level Information for 2,4,5 - Trichlorophenol**

Primary SIC Code	SIC Description	1998	1999	2000	2001
2869	Industrial Organic Chemicals, nec	23,226	26,098	32,443	20,657

**Biennial Report (BR) Data**

*National-Level Chemical Information*

The following table shows the total quantity (pounds) of the hazardous waste streams that may contain 2,4,5-trichlorophenol reported in 1997, 1999 and 2001. The waste codes associated with 2,4,5-trichlorophenol are—D041, F020, F021, F022, F023, F026 and K001. The quantity of hazardous waste stream(s) that may contain 2,4,5-trichlorophenol decreased by 76 percent from 1997 to 2001.

**Exhibit 184. National-Level Information for 2,4,5 - Trichlorophenol**

Chemical	1997	1999	2001	% change
2,4,5-Trichlorophenol	851,543,327	847,474,436	204,763,734	-76.0

*EPA Region Information*

The following table shows the quantity (pounds) of the hazardous waste stream(s) that may contain 2,4,5-trichlorophenol reported in 1997, 1999 and 2001 for each EPA region. In 2001, Regions 8 and 5 had the largest quantities.

**Exhibit 185. Regional-Level Information for 2,4,5 – Trichlorophenol**

Region	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
1	620,456	4,238,091	482	0.0	-99.9
2	44,049,459	45,278,410	385,973	0.2	-99.1
3	4,080,477	12,501,467	4,784,880	2.3	17.3
4	187,301,693	196,296,809	29,013,449	14.2	-84.5
5	19,974,101	51,342,854	46,163,285	22.5	131.1
6	7,355,818	8,217,888	20,734,041	10.1	181.9
7	12,668,682	8,838,615	6,864,457	3.4	-45.8
8	575,478,989	498,588,126	75,436,496	36.8	-86.9
9	11,721	22,171,561	21,038,048	10.3	179385.1
10	1,930	615	342,624	0.2	17653.7
<b>TOTAL</b>	<b>851,543,327</b>	<b>847,474,436</b>	<b>204,763,734</b>	<b>100.0</b>	

*State Information*

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain 2,4,5-trichlorophenol reported in 1997, 1999 and 2001 for each state that had more than 1 percent of the total 2001 quantity. Facilities in Wyoming and Indiana accounted for approximately 50 percent of this total.

**Exhibit 186. State-Level Information for 2,4,5 - Trichlorophenol**

State	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
WY	575,437,368	492,217,880	70,380,980	35.6	-87.8
IN	31	4,737,480	26,723,496	13.5	86204726.4
AL	72,682,953	160,179,226	21,364,995	10.8	-70.6
OH	9,269,467	15,249,741	19,107,226	9.7	106.1
AZ	167	20,338,992	18,758,935	9.5	11232795.3
AR	1,417,656	167,354	16,024,900	8.1	1030.4
KS	9,731,557	7,723,763	5,644,410	2.9	-42.0
NC	268,610	1,268,903	5,279,114	2.7	1865.3
UT	500	5,943,859	4,964,256	2.5	992751.2
VA	4	9,452,334	4,227,125	2.1	105678030.6
TX	5,047,300	0	2,865,200	1.4	-43.2
CA	10,800	1,832,081	2,277,579	1.2	20988.7

### Industry Sector (NAICS Code) Information

The following table shows the total quantity (pounds) of the hazardous waste stream(s) that may contain 2,4,5-trichlorophenol reported in 1997, 1999 and 2001 for each industry sector (NAICS code) that accounted for more than 1 percent of the 2001 total. Facilities in NAICS code 562211 had about 54 percent of the total quantity of 2,4,5-trichlorophenol in 2001.

**Exhibit 187. Industry Sector-Level Information for 2,4,5 - Trichlorophenol**

NAICS	Description	1997	1999	2001	% of Total BR Qty (2001)	% Change (1997-2001)
562211	Hazardous Waste Treatment and Disposal	0	0	108,962,476	54.4	-----
482111	Line-Haul Railroads	575,503,908	492,217,880	70,427,580	35.1	-87.8
56292	Materials Recovery Facilities	0	0	8,150,801	4.1	-----
339999	All Other Miscellaneous Manufacturing	20	0	7,880,262	3.9	39,401,212.5
325199	All Other Basic Inorganic Chemical Manufacturing	0	0	2,817,000	1.4	-----
321114	Wood Preservation	111,973,592	181,469,845	2,179,121	1.1	-98.1

### Conclusion

The quantity of 2,4,5-trichlorophenol represents less than 0.1 percent of the 2001 NPEP Priority Chemical total reported to TRI. The NPEP Priority Chemical quantity for 2,4,5-trichlorophenol has remained relatively consistent, between 20,000 and 32,500 from 1998 to 2001. All of this quantity was reported by one facility in Region 2 in the State of New Jersey. Over 99 percent of this quantity is treated.

The NPEP Priority Chemical quantity of 2,4,5-trichlorophenol is associated only with SIC code 2869 (industrial organic chemicals, nec) in 1998 to 2001. Facilities in NAICS codes 562211 (hazardous waste treatment and disposal) accounted for approximately 54 percent of the 2001 BR quantity of waste streams containing 2,4,5-trichlorophenol. No correlation between TRI and BR data is apparent from the data used to develop this Trends Report.

## Trifluralin

### Chemical Information

Trifluralin is a yellow-orange crystalline solid

**CAS Number** - 1582-09-8

**Alternate Names** - 2,6-dinitro-N,N-dipropyl-4-(trifluoromethyl)-benzamine, benzeneamine

**General Uses** - Trifluralin is an herbicide used primarily on cotton and soybean crops.

Trifluralin is a yellow-orange crystalline solid. Production of trifluralin has declined since restrictions on product formulation were implemented in 1982 due to carcinogenicity and mutagenicity concerns. It is used on soybean crops, cotton, wheat, alfalfa, sunflowers and many other crops.

**Potential Hazards** - This chemical is an irritant of the eyes and skin. It emits toxic fumes of fluorine and nitrogen oxides when heated to decomposition.

### Toxics Release Inventory (TRI) Data

#### *National-Level Chemical Information*

Exhibit 188 shows the total NPEP Priority Chemical quantity (pounds) of trifluralin reported in 1998 to 2001. During this period, there was an almost 19 percent decrease in the NPEP Priority Chemical quantity of trifluralin.

**Exhibit 188. National-Level Information for Trifluralin**

CHEMICAL NAME	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
TRIFLURALIN	103,803	91,103	85,790	84,200	0.1	-18.9

#### *EPA Region Information*

Exhibit 189 shows the NPEP Priority Chemical quantity (pounds) of trifluralin for the EPA Regions in 1998 to 2001. Region 7 had most of the NPEP Priority Chemical quantity of trifluralin in 2001.

**Exhibit 189. Regional-Level Information for Trifluralin**

EPA Region	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
7	76,821	69,430	82,683	71,682	85.1	-6.7
4	23,423	21,673	1,113	9,965	11.8	-57.5
9	0	0	375	998	1.2	-----
5	3,559	0	1,148	722	0.9	-79.7
6	0	0	228	627	0.7	-----
2	0	0	0	206	0.2	-----
10	0	0	243	0	0.0	-----
<b>TOTAL</b>	<b>103,803</b>	<b>91,103</b>	<b>85,790</b>	<b>84,200</b>	<b>100</b>	

*State Information*

Exhibit 190 lists the states that had NPEP Priority Chemical quantities (pounds) of trifluralin in 1998 to 2001. Iowa had most of the NPEP Priority Chemical quantity of trifluralin in 2001.

**Exhibit 190. State-Level Information for Trifluralin**

STATE	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
Iowa	44,160	57,681	65,999	65,187	77.4	47.6
Georgia	9,599	9,499	0	9,885	11.7	3.0
Missouri	32,661	11,749	16,684	6,495	7.7	-80.1
California	0	0	375	998	1.2	-----
Ohio	469	0	1,145	722	0.9	54.0
Arkansas	0	0	228	626	0.7	-----
New Jersey	0	0	0	206	0.2	-----
Mississippi	13,824	12,174	1,113	80	0.1	-99.4
Texas	0	0	0	1	0.0	-----
Indiana	3,090	0	0	0	0.0	-100
Washington	0	0	243	0	0.0	-----
Wisconsin	0	0	3	0	0.0	-----
<b>TOTAL</b>	<b>103,803</b>	<b>91,103</b>	<b>85,790</b>	<b>84,200</b>	<b>100.0</b>	

*Industry Sector (SIC Code) Information*

Exhibit 191 shows the national NPEP Priority Chemical quantity (pounds) of trifluralin by industry sector (1998 to 2001). The pesticides and agricultural chemicals, nec sector had almost the entire NPEP Priority Chemical quantity of trifluralin in 2001.

**Exhibit 191. Industry Sector Information for Trifluralin**

PRIMARY SIC CODE	SIC Description	1998	1999	2000	2001	% of Total PC Qty (2001)	% Change (1998-2001)
2879	Pesticides and agricultural chemicals, nec	100,713	91,103	83,705	82,325	97.8	-18.3
9511	Air, water, solid waste management	0	0	228	626	0.7	-----
2875	Fertilizers, mixing only	0	0	1,184	617	0.7	-----
3084	Plastics, pipe	0	0	334	321	0.4	-----
2869	Industrial organic chemicals, nec	0	0	0	206	0.2	-----
2032	Canned specialties	0	0	96	105	0.1	-----
2011	Meat packing plants	0	0	243	0	0.0	-----
2834	Pharmaceutical preparations	3,090	0	0	0	0.0	-100.0
<b>TOTAL</b>		<b>103,803</b>	<b>91,103</b>	<b>85,790</b>	<b>84,200</b>	<b>100.0</b>	

**Biennial Report (BR) Data**

No waste codes were associated with trifluralin.

### **Conclusion**

From 1998 to 2001, there was an almost 19 percent decrease in the NPEP Priority Chemical quantity of trifluralin. From 1998 to 2001, the percentage of trifluralin being treated has increased from 79 percent to 95 percent.

Trifluralin accounted for about 0.1 percent of the national total NPEP Priority Chemical quantity in 2001 with 84,200 pounds. Less than 15 facilities have reported trifluralin to TRI each year from 1998 to 2001, with the majority of the NPEP Priority Chemical quantity being reported from facilities in Region 7 in the State of Iowa.

Facilities in the pesticides and agricultural chemicals, nec sector (SIC code 2879) reported almost the entire NPEP Priority Chemical quantity of trifluralin in 2001. No BR waste codes were associated with trifluralin.