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

### Section 4 Trends Analyses for Specific Priority Chemicals (2004-2006): Hexachloro-1,3-butadiene (HCBd)

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# Hexachloro-1,3-butadiene (HCBD)

## Chemical Information

**Alternate Names:** HCBD, 1,3-hexachlorobutadiene, perchlorobutadiene

**General Uses:** HCBD is used to make rubber and lubricants, and in solvents, gyroscopes, heat transfer liquid, and hydraulic liquid.

## How Much Hexachloro-1,3-Butadiene Was Generated?

For 2006, only five facilities reported approximately 7.1 million pounds of HCBD being generated; two facilities reported approximately 99 percent of the national total quantity of this PC (please refer to Exhibit 3.4 to see the number of facilities that reported this PC within various quantity ranges). Compared to the total quantities of HCBD reported for 2004 and 2005, the quantity increased by approximately 2.1 million pounds and decreased by approximately 434,000 pounds, respectively (Exhibit 4.25).

**Exhibit 4.25. National Generation of Hexachloro-1,3-butadiene (2004–2006)**

TRI Reporting Year	2004	2005	2006
Total Quantity of Hexachloro-1,3-butadiene (pounds)	4,965,637	7,514,661	7,081,116
Number of TRI Facilities Reporting Hexachloro-1,3-butadiene	3	5	5

## Where Was Hexachloro-1,3-butadiene Generated?

For 2006, five facilities in two states, Louisiana and Texas (both in EPA Region 6), reported 100 percent of the HCBD generated (Exhibit 4.26). From 2004 to 2006, two alkalies and chlorine manufacturing facilities, located in Louisiana, reported 99 percent of the total quantity of HCBD generated. The facility in Ascension County attributed significant annual fluctuations in the quantity of HCBD, including a decrease of approximately 530,000 pounds for 2006, due to analytical variability and production activity. The facility in Calcasieu County noted annual fluctuations likely resulted from a combination of changes in facility production and the quantity of wastes (containing HCBD) from offsite sources incinerated at this facility; the facility also experienced hurricane-related operational problems during the 2005 reporting year.

**Exhibit 4.26. Quantity of Hexachloro-1,3-butadiene, for Facilities Reporting 99.9 Percent of Total Quantity, by County (2006)**

EPA Region	State	County	Quantity (pounds) of HCBD			Percent of Total Quantity (2006)
			2004	2005	2006	
6	LA	Ascension	964,016	4,035,132	3,505,325	49.5%
6	LA	Calcasieu	3,998,427	3,380,388	3,502,329	49.5%
6	LA	East Baton Rouge	0	53,535	44,897	0.6%
6	LA	Iberville	0	44,006	22,010	0.3%
6	TX	Brazoria	3,194	1,600	6,555	0.1%
<b>Total</b>			<b>4,965,637</b>	<b>7,514,661</b>	<b>7,081,116</b>	<b>100.0%</b>

## Which Industries Generated Hexachloro-1,3-butadiene?

For 2006, five facilities in three NAICS codes reported generating HCBD (Exhibit 4.27). Facilities in NAICS code 325181 (Alkalies and chlorine manufacturing) accounted for approximately 99 percent of the national total quantity of HCBD generated for 2006.

### Exhibit 4.27. Industry Sectors Quantities of Hexachloro-1,3-butadiene (2004–2006)

Primary NAICS Code	NAICS Code Description	Facilities Reporting (2006)	Quantity (pounds) of HCBD			Percent of Total Quantity (2006)
			2004	2005	2006	
325181	Alkalies and Chlorine Manufacturing	3	4,965,637	7,417,120	7,014,209	99.1%
325188	All Other Basic Inorganic Chemical Manufacturing	1	0	53,535	44,897	0.6%
325211	Plastics Material and Resin Manufacturing	1	0	44,006	22,010	0.3%
<b>Total</b>		<b>5</b>	<b>4,965,637</b>	<b>7,514,661</b>	<b>7,081,116</b>	<b>100.0%</b>

## How Did Facilities Manage Hexachloro-1,3-butadiene?

Exhibit 4.28 shows how facilities, by industry, managed HCBD in 2006.

**Land Disposal:** Facilities disposed of less than 0.1 percent of the HCBD generated. Nonetheless, facilities in 8 of the 13 industries used disposal for all or at least a significant portion of the HCBD generated.

**Energy Recovery:** Facilities used energy recovery for less than 0.1 percent of the HCBD generated.

**Treatment:** Facilities in all three industries treated, mostly onsite, virtually all the HCBD generated.

**Recycling:** Facilities recycled approximately 301,000 pounds of HCBD in 2006—all onsite. From 2004 to 2006, a facility in NAICS code 325181 (Alkalies and Chlorine Manufacturing) accounted for approximately 99.9 percent of the total quantity recycled.

### Exhibit 4.28. Management Methods for Hexachloro-1,3-butadiene in Industry Sectors (2006)

Primary NAICS Code	NAICS Code Description	Total PC Quantity* Reported	Quantity (pounds) of Hexachloro-1,2-butadiene							
			Disposal		Energy Recovery		Treatment		Recycling	
			Onsite	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite	Offsite
325181	Alkalies and Chlorine Manufacturing	7,014,209	6	15	0	14	6,992,503	21,671	300,775	0
325188	All Other Basic Inorganic Chemical Manufacturing	44,897	0	0	0	0	44,887	10	0	0
325211	Plastics Material and Resin Manufacturing	22,010	0	0	0	0	22,000	10	0	0
<b>Total</b>		<b>7,081,116</b>	<b>6</b>	<b>15</b>	<b>0</b>	<b>14</b>	<b>7,059,390</b>	<b>21,691</b>	<b>300,775</b>	<b>0</b>

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

## Data Derived From Hazardous Waste Biennial Reports For Hexachloro-1,3-butadiene

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

Exhibit 4.29 shows the estimated quantity of HCBD contained in hazardous wastes generated in 2005—derived from data reported by facilities on the BR. We estimate that hazardous wastes reported by facilities in these industries contained approximately 1.6 million pounds HCBD. Waste streams classified as non-wastewaters contained approximately 99.9 percent of the HCBD. Facilities in three industries: NAICS code 424610 (Plastics Materials and Basic Forms and Shapes Merchant Wholesalers), NAICS code 325181 (Alkalies and Chlorine Manufacturing), and NAICS code 325199 (All Other Basic Organic Chemical Manufacturing) accounted for approximately 99 percent of the total estimated quantity of HCBD in the hazardous waste streams.

**Exhibit 4.29. Estimated Quantity of Hexachloro-1,3-butadiene in Primary Generation Hazardous Waste,  
by NAICS Code (2005)**

Primary NAICS Code	NAICS Code Description	Number of Facilities	Quantity (pounds) of HCBd			Percent of Total Quantity
			Non-wastewaters	Wastewaters	Total Quantity	
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	1	699,494	1,134	700,628	43.9%
325181	Alkalies and Chlorine Manufacturing	4	450,532	0	450,532	28.2%
325199	All Other Basic Organic Chemical Manufacturing	8	433,457	1,341	434,798	27.2%
325110	Petrochemical Manufacturing	3	6,283	0	6,283	0.4%
325211	Plastics Material and Resin Manufacturing	4	4,906	0	4,906	0.3%
325131	Inorganic Dye and Pigment Manufacturing	1	35	0	35	0.0%
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	1	26	0	26	0.0%
334112	Computer Storage Device Manufacturing	1	3	0	3	0.0%
334510	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	1	3	0	3	0.0%
<b>Total</b>		<b>24</b>	<b>1,594,738</b>	<b>2,475</b>	<b>1,597,213</b>	<b>100.0%</b>