

## MERCURY

(Data in metric tons of mercury content unless otherwise noted)<sup>1</sup>

**Domestic Production and Use:** Mercury was produced as a byproduct from several gold-silver mines in Nevada; however, byproduct production data were not reported. Mercury has not been produced as a primary mineral commodity in the United States since 1992, when the McDermitt Mine in Nevada closed. Processing of calomel, a mercury-chlorine compound obtained from domestic and foreign mines, is another source of mercury. Retorting end-of-use mercury-containing products, such as batteries, dental amalgam, and fluorescent lamps, and mercury contaminated soils, provided another source of mercury. The domestic chlorine-caustic soda industry was the leading end user of mercury. Some of the mercury used at these facilities was recycled in-plant; however, approximately 100 tons of replacement mercury is purchased yearly. Some mercury-containing chlor-alkali waste, as "amalgam" (not chemically defined), was exported to Canada and landfilled. Mercury use has declined in the United States because of mercury toxicity. Mercury has been released to the environment from coal-fired power plants, car switches when the automobile is scrapped for recycling, and from incinerated mercury-containing medical devices. Mercury is no longer used in batteries and paints manufactured in the United States. Exported mercury is widely used for artisanal gold mining, chlorine-caustic soda production, and dental amalgam. Button-type batteries, cleansers, fireworks, folk medicines, grandfather clocks, pesticides, and some skin-lightening creams and soaps may also contain mercury.

<b><u>Salient Statistics—United States:</u></b>	<b><u>2003</u></b>	<b><u>2004</u></b>	<b><u>2005</u></b>	<b><u>2006</u></b>	<b><u>2007<sup>e</sup></u></b>
Production:					
Mine (byproduct)	NA	NA	NA	NA	NA
Secondary	NA	NA	NA	NA	NA
Imports for consumption (gross weight):					
Metal	46	50	212	94	100
Calomel <sup>2</sup>	8	165	260	47	140
Amalgam, not chemically defined	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total	54	215	472	141	240
Exports (gross weight):					
Metal	287	300	319	390	300
Amalgam, not chemically defined	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total	287	300	319	390	300
Price, average value, dollars per flask, free market <sup>3</sup>	170.00	400.00	775.00	650.00	550.00
Net import reliance <sup>4</sup> as a percentage of apparent consumption	E	E	E	E	E

**Recycling:** In 2007, five companies accounted for the majority of secondary mercury reclamation and production. Smaller companies collected dental amalgam, barometers, computers, gym flooring, manometers, thermometers, thermostats, and some mercury-containing toys and moved them on to larger companies for retorting. The reservoir of mercury-containing products for recycling is shrinking because of increased use of nonmercury substitute devices.

**Import Sources (2003-06):** Peru, 38%; Chile, 20%; Germany, 15%; Russia, 11%; and other, 16%.

<b><u>Tariff: Item</u></b>	<b><u>Number</u></b>	<b><u>Normal Trade Relations</u></b>
Mercury	2805.40.0000	<u>12-31-07</u> 1.7% ad val.

**Depletion Allowance:** 22% (Domestic), 14% (Foreign).

**Government Stockpile:** An inventory of 4,436 tons of mercury was held at several sites in the United States; however, the Defense Logistics Agency has indicated that consolidated storage is the preferred alternative. Sales of mercury from the National Defense Stockpile remained suspended. An additional 1,306 tons of mercury was held by the U.S. Department of Energy, Oak Ridge, TN.

### Stockpile Status—9-30-07<sup>5</sup>

<b>Material</b>	<b>Uncommitted inventory</b>	<b>Committed inventory</b>	<b>Authorized for disposal</b>	<b>Disposal plan FY 2006</b>	<b>Disposals FY 2006</b>
Mercury	4,436	—	4,436	—	—

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**Events, Trends, and Issues:** The United States is a leading exporter of mercury, and the principal export destinations of U.S. mercury in 2006 were the Netherlands (118 t), India (80 t), Vietnam (74 t), and Singapore (25 t). According to trade journals, the average cost of a flask of domestic mercury was \$550 in 2007. The rising price of gold has driven the global demand for mercury that is used for artisanal gold mining. Diminishing supplies of mercury that can be recycled from end-of-use, mercury-containing products, and availability of mercury from China, Kyrgyzstan, and Spain, also affect the mercury price. Nonmercury technology for the production of chlorine and caustic soda and the ultimate closure of the world's mercury-cell chlor-alkali plants will put tons of mercury on the global market for recycling, sale, or storage. The U.S. Department of State, the U.S. Environmental Protection Agency, the U.S. Geological Survey, and other Government agencies participated in interagency meetings to address possible export bans of mercury. This ban is addressed by recent legislation that includes the Mercury Export Ban Act of 2007 (H.R. 1534) and the Mercury Market Minimization Act of 2007 (S. 3627). Governmental regulations and environmental standards are likely to continue as major factors in domestic mercury recycling, supply, and demand. Byproduct mercury production is expected to continue from gold-silver mining and processing, as is recycling of mercury from a diminishing supply of mercury-containing products such as auto convenience switches, dental amalgam, fluorescent lamps, and thermostats. Imported calomel is another significant source of mercury. Domestic mercury consumption will continue to decline as nonmercury-containing products, such as digital thermometers or galistan-containing thermometers, are substituted.

**World Mine Production, Reserves, and Reserve Base:** Reserves have been revised to zero for Spain because it no longer mines mercury; however, Spain is a leading exporter of virgin mercury produced from stockpiled ore.

	Mine production		Reserves <sup>6</sup>	Reserve base <sup>6</sup>
	2006	2007 <sup>e</sup>		
United States	NA	NA	—	7,000
Algeria	—	—	—	3,000
China	1,100	1,100	—	—
Italy	—	—	—	69,000
Kyrgyzstan	250	250	7,500	13,000
Spain	—	—	—	90,000
Other countries	125	150	38,000	61,000
World total (rounded)	1,480	1,500	46,000	240,000

**World Resources:** China, Kyrgyzstan, Russia, Slovenia, Spain, and Ukraine have most of the world's estimated 600,000 tons of mercury resources. Spain, once a leading producer of mercury from its centuries-old Almaden Mine, stopped mining in 2003, and production is from stockpiled or recycled material. In the United States, there are mercury occurrences in Alaska, Arkansas, California, Nevada, and Texas; however, there has been no mining of mercury as a primary metal commodity since 1992. The declining consumption of mercury, except for artisanal gold mining, indicates that these resources are sufficient for another century or more of use. There are no data on the mercury produced from calomel or as a byproduct from gold, silver, or other mines.

**Substitutes:** Many dentists use ceramic composites as substitutes for mercury-containing dental amalgam for esthetic and human health concerns. "Galistan," an alloy of gallium, indium, and tin, or alternatively, digital thermometers, now replaces the mercury used in thermometers. At chlorine-caustic soda plants, mercury-cell technology is being replaced by newer diaphragm and membrane cell technology. Light-emitting diodes (LEDs) that contain indium, such as those used at the Thomas Jefferson Memorial in Washington, DC, substitute for mercury-containing fluorescent lamps. Lithium, nickel-cadmium, and zinc-air batteries replace mercury-zinc batteries in the United States, indium compounds substitute for mercury in alkaline batteries, and organic compounds have been substituted for mercury fungicides in latex paint.

<sup>e</sup>Estimated. E Net exporter. NA Not available. — Zero.

<sup>1</sup>Some international data and dealer prices are reported in flasks. One metric ton (1,000 kilograms) = 29.0082 flasks, and 1 flask = 76 pounds, or 34.5 kilograms, or 0.034 ton.

<sup>2</sup>Estimated to be 40% mercury content.

<sup>3</sup>Platts Metals Week average mercury price quotation for the year. Actual prices may vary significantly from quoted prices.

<sup>4</sup>Defined as imports – exports + adjustments for Government and industry stock changes.

<sup>5</sup>See Appendix B for definitions.

<sup>6</sup>See Appendix C for definitions.