

## MERCURY

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

**Domestic Production and Use:** Mercury has not been produced as a primary commodity in the United States since 1992, when the McDermitt Mine, Humboldt County, NV, closed. However, byproduct mercury was produced from processing gold-silver ore at several mines in Nevada. These data were not reported. Secondary, or recycled, mercury was recovered by retorting end-of-use mercury-containing products that include batteries, compact and traditional fluorescent lamps, dental amalgam, medical devices, and thermostats, as well as mercury-contaminated soils. The mercury was processed and refined for resale or exported. Secondary mercury production data were not reported. Mercury use is not carefully tracked in the United States; however, only about 100 metric tons per year of mercury are consumed domestically. The leading domestic end user of mercury was the chlorine-caustic soda industry. Only five mercury cell facilities were operating at yearend 2008, and based on announced plans, only four mercury-cell facilities will be in operation at yearend 2009. Owing to mercury toxicity and concerns for human health, mercury use has declined in the United States. Mercury has been released to the environment from mercury-containing car switches when the automobile is scrapped for recycling, from coal-fired powerplant emissions, and from incinerated mercury-containing medical devices. Mercury is no longer used in batteries and paints manufactured in the United States. Mercury was imported, refined, and then exported for global use in chlorine-caustic soda production, dental amalgam, fluorescent lights, and small-scale gold mining. Some button-type batteries, cleansers, fireworks, folk medicines, grandfather clocks, pesticides, and skin-lightening creams and soaps may contain mercury.

<b>Salient Statistics—United States:</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009<sup>e</sup></b>
Production:					
Mine (byproduct)	NA	NA	NA	NA	NA
Secondary	NA	NA	NA	NA	NA
Imports for consumption (gross weight), metal	212	94	67	155	190
Exports (gross weight), metal	319	390	84	732	700
Price, average value, dollars per flask, free market <sup>2</sup>	555.00	670.00	530.00	600.00	630.00
Net import reliance <sup>3</sup> as a percentage of apparent consumption	E	E	E	E	E

**Recycling:** In 2009, six companies in the United States accounted for the majority of secondary mercury reclamation and production. More than 50 smaller companies collected automobile convenience switches, barometers, computers, dental amalgam, medical devices, thermostats, and some mercury-containing toys and shipped them on to larger companies for retorting. The reservoir of mercury-containing products for recycling is shrinking because of increased use of nonmercury substitutes.

**Import Sources (2005-08):** Peru, 60%; Germany, 10%; Russia, 10%; Chile, 6%; and other, 14%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations</b>
Mercury	2805.40.0000	<b>12-31-09</b> 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 1,329 tons of mercury was held by the U.S. Department of Energy, Oak Ridge, TN.

### Stockpile Status—9-30-09<sup>4</sup>

<b>Material</b>	<b>Uncommitted inventory</b>	<b>Authorized for disposal</b>	<b>Disposal plan FY 2009</b>	<b>Disposals FY 2009</b>
Mercury	4,436	4,436	—	—

**Events, Trends, and Issues:** The United States is a leading exporter of mercury, and in 2009, the principal export destinations were Australia, the Netherlands, and Peru. According to trade journals, the average cost of a flask of domestic mercury was \$580 to \$680 in 2009. Global consumption of mercury was estimated to be approximately 2,000 tons per year, and approximately 50% of this consumption came from the use of mercury compounds to make vinyl monomer in China and Eastern Europe. Mercury is also widely used for small-scale gold mining in many

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parts of the world, and the rising price of gold, to as high as \$1,040 per troy ounce in 2009, has also influenced the global demand for mercury. 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 Federal Government is trying to find a location to store the Nation's excess mercury, and seven States—Colorado, Idaho, Missouri, Nevada, South Carolina, Texas, and Washington—are being considered. The U.S. Geological Survey completed a study of mercury in fish, bed sediments, and water in 291 streams across the United States. Mercury contamination that exceeded the U.S. Environmental Protection Agency (EPA) human-health criterion of 0.3 microgram per gram wet weight was detected in 25% of the samples. The EPA continued its efforts to provide the technology necessary to reduce mercury emissions from gold shops in Brazil, Peru, and other parts of South America. Mercury is widely used in small-scale gold mining, and it is common practice to burn the mercury-gold amalgam in order to purify the gold for sale. The Washington, D.C. Circuit Court rescinded the EPA's rule removing coal-fired powerplants from the Clean Air Act list of sources of hazardous air pollutants. At the same time, the Court rescinded the Clean Air Mercury Rule, which was issued in 2005 and was the first-ever rule to regulate mercury emissions from coal-fired powerplants. 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 domestic and foreign gold-silver mining and processing, as is secondary production of mercury from a diminishing supply of mercury-containing products such as thermostats. Mercury may also be recovered and recycled from compact and traditional fluorescent lamps. Domestic mercury consumption will continue to decline as nonmercury-containing products, such as digital thermometers, are substituted.

**World Mine Production and Reserves:** Reserves data for China were included based on official Government statistics.

	Mine production		Reserves <sup>5</sup>
	2008	2009 <sup>e</sup>	
United States	NA	NA	—
China	800	800	21,000
Kyrgyzstan	250	250	7,500
Peru (byproduct)	136	100	NA
Spain	NA	NA	NA
Other countries	130	130	38,000
World total (rounded)	1,320	1,280	67,000

**World Resources:** China, Kyrgyzstan, Russia, Slovenia, Spain, and Ukraine have most of the world's estimated 600,000 tons of mercury resources. Peru continues to be an important source of byproduct mercury imported into the United States. Spain, once a leading producer of mercury from its centuries-old Almaden Mine, stopped mining in 2003, and production is from stockpiled material. In the United States, there are mercury occurrences in Alaska, Arkansas, California, Nevada, and Texas; however, mercury has not been mined as a principal metal commodity since 1992. The declining consumption of mercury, except for small-scale gold mining, indicates that these resources are sufficient for another century or more of use.

**Substitutes:** For aesthetic or human health concerns, natural-appearing ceramic composites substitute for the dark-gray mercury-containing dental amalgam. "Galistan," an alloy of gallium, indium, and tin, or alternatively, digital thermometers, now replaces the mercury used in thermometers. Mercury-cell technology is being replaced by newer diaphragm and membrane cell technology at chlor-alkali plants. Light-emitting diodes that contain indium 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 0.035 ton.

<sup>2</sup>Platts Metals Week average mercury price quotation for the year. Actual prices may vary significantly from quoted prices.

<sup>3</sup>Defined as imports – exports + adjustments for Government and industry stock changes.

<sup>4</sup>See Appendix B for definitions.

<sup>5</sup>See Appendix C for definitions. Reserve base estimates were discontinued in 2009; see Introduction.