

MERCURY

(Data in metric tons of mercury content unless otherwise noted)¹

Domestic Production and Use: Mercury has not been produced as a principal mineral commodity in the United States since 1992, when the McDermitt Mine, in Humboldt County, NV, closed. In 2012, mercury was recovered as a byproduct from processing gold-silver ore at several mines in Nevada; however, these production data were not reported. Secondary, or recycled, mercury was recovered by retorting end-of-use mercury-containing products that mainly included 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, less than 50 metric tons per year of mercury was consumed domestically. The leading domestic end user of mercury was the chlorine-caustic soda industry. Owing to mercury toxicity and concerns for the environment and human health, overall 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, compact and traditional fluorescent lights, dental amalgam, and neon lights; however, its primary use is for small-scale gold mining in many parts of the world. Some button-type batteries, cleansers, fireworks, folk medicines, grandfather clocks, pesticides, and some skin-lightening creams and soaps may contain mercury.

| Salient Statistics—United States: | 2008 | 2009 | 2010 | 2011 | 2012^e |
|--|-------------|-------------|-------------|-------------|-------------------------|
| Production: | | | | | |
| Mine (byproduct) | NA | NA | NA | NA | NA |
| Secondary | NA | NA | NA | NA | NA |
| Imports for consumption (gross weight), metal | 155 | 206 | 294 | 110 | 280 |
| Exports (gross weight), metal | 732 | 753 | 459 | 132 | 110 |
| Price, average value, dollars per flask, free market ² | 600 | 610 | 1,076 | 1,850 | 1,850 |
| Net import reliance ³ as a percentage of apparent consumption | E | E | E | E | NA |

Recycling: In 2012, six companies in the United States accounted for the majority of secondary mercury recycling and production. Mercury-containing automobile convenience switches, barometers, compact and traditional fluorescent lamps, computers, dental amalgam, medical devices, thermostats, and some mercury-containing toys were collected by as many as 50 smaller companies and then the mercury-containing materials were shipped to larger companies for retorting and reclamation of the mercury. In addition, many recycling companies recovered mercury from waste themselves when retorting was not required. The increased use of nonmercury substitutes has resulted in a shrinking reservoir of mercury-containing products for recycling.

Import Sources (2008–11): Chile, 46%; Peru, 43%; Germany, 6%; Canada, 3%; and other, 2%.

| Tariff: Item | Number | Normal Trade Relations |
|---------------------|---------------|-------------------------------|
| | | 12–31–12 |
| Mercury | 2805.40.0000 | 1.7% ad val. |

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

Government Stockpile: An inventory of 4,436 tons of mercury was held in storage at the Hawthorne Army Depot, Hawthorne, NV. About 1,200 tons of mercury also was held by the U.S. Department of Energy, Oak Ridge, TN. Sales of mercury from the National Defense Stockpile remained suspended.

Stockpile Status—9–30–12⁴

| Material | Uncommitted inventory | Authorized for disposal | Disposal plan FY 2012 | Disposals FY 2012 |
|-----------------|------------------------------|--------------------------------|------------------------------|--------------------------|
| Mercury | 4,436 | 4,436 | — | — |

Events, Trends, and Issues: The United States was one of the five leading mercury-exporting countries in 2012; the principal export destinations were Indonesia, Nigeria, and Peru. The average monthly price of one flask of domestic mercury and free market mercury was unchanged at \$1,850 throughout the year. Imports increased significantly in 2012; this is the result of foreign companies storing mercury for 2 to 3 years before exporting it to the United States. Imports have fluctuated since 2000 on a 2- or 3-year cycle.

MERCURY

Global consumption of mercury was estimated to be 2,000 tons per year, and approximately 50% of this consumption came from the use of mercury compounds as a catalyst in the coal-based manufacture of vinyl chloride monomer in China. Use of nonmercury technology for chloralkali production and the ultimate closure of the world's mercury-cell chloralkali plants may put a large quantity of mercury on the global market for recycling, sale, or, owing to export bans in Europe and the United States, storage. A major chlorine producer continued the conversion of one mercury cell plant in Tennessee to membrane technology and planned to discontinue chlorine manufacture at a plant in Georgia that used mercury cell technology. These changes were scheduled to be completed by yearend 2012, leaving only 2 mercury cell chlorine-caustic soda plants in use in the United States, compared with 5 in 2008, and 14 in 1996.

Byproduct mercury production is expected to continue from large-scale domestic and foreign gold-silver mining and processing, as is secondary production of mercury from an ever-diminishing supply of mercury-containing products, such as automobile convenience switches and thermostats. However, the volume of byproduct mercury that enters the global supply from foreign gold-silver processing may fluctuate dramatically from year to year; for example, mercury in Chile and Peru is typically stockpiled until there is sufficient material for export. Domestic mercury consumption will continue to decline as nonmercury-containing products, such as digital thermometers, are substituted for those containing mercury.

World Mine Production and Reserves:

| | Mine production | | Reserves ⁵ |
|-----------------------|-----------------|-------------------|-----------------------|
| | 2011 | 2012 ^e | |
| United States | NA | NA | — |
| Chile (byproduct) | 100 | 90 | NA |
| China | 1,500 | 1,200 | 21,000 |
| Kyrgyzstan | 250 | 150 | 7,500 |
| Mexico (reclaimed) | 21 | 21 | 27,000 |
| Peru (byproduct) | 35 | 35 | NA |
| Other countries | 103 | 100 | 38,000 |
| World total (rounded) | 2,010 | 1,600 | 94,000 |

World Resources: China, Kyrgyzstan, Mexico, Peru, Russia, Slovenia, Spain, and Ukraine have most of the world's estimated 600,000 tons of mercury resources. Mexico reclaims mercury from Spanish Colonial silver mining waste. In Peru, mercury production from the Santa Barbara Mine (Huancavelica) stopped in the 1990s; however, 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. In the United States, there are mercury occurrences in Alaska, Arkansas, California, Nevada, and Texas; however, mercury has not been mined as a principal mineral 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 traditional mercury thermometers. At chloralkali plants around the world, mercury-cell technology is being replaced by newer diaphragm and membrane cell technology. 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.

^eEstimated. E Net exporter. NA Not available. — Zero.

¹Some 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.

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

³Defined as imports – exports + adjustments for Government and industry stock changes.

⁴See Appendix B for definitions.

⁵See Appendix C for resource/reserve definitions and information concerning data sources.