



2009 Minerals Yearbook

MERCURY

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In 2009, there were no mines with mercury as a principal product in the United States. The last mine to produce mercury as its principal product, the McDermitt Mine in northern Nevada, closed in 1992. In 2009, mercury was produced as a byproduct of domestic gold-silver processing, mainly in Nevada, and may have been produced as a byproduct of processing other metals. Imported byproduct mercury was processed, and the mercury was resold. Recycled mercury was produced from reclamation of mercury contained in fluorescent lamps and a declining supply of mercury-containing automobile convenience switches, batteries, dental amalgam, electronic waste, medical devices, and thermostats. The chlorine-caustic soda industry was the leading domestic user of mercury for its mercury-cell plants, and some of that mercury is recycled in-plant. Data on domestic byproduct and recycled mercury production were not available.

Since 1927, the common unit for measuring and pricing mercury has been the “flask,” which was set to conform to the historical measuring system used at Almaden, Spain (Myers, 1951). One flask of mercury weighs 34.5 kilograms (kg), and 1 metric ton (t) of mercury contains approximately 29 flasks. The flask itself is a screw-top, welded-steel container that is approximately the size of a 2-liter bottle.

Legislation and Government Programs

The Mercury Pollution Reduction Act of 2009 (H.R. 2065) was introduced and referred to the House Committee on Energy and Commerce on April 23. This legislation indicated that the United States should develop policies to reduce mercury use and emissions, mercury releases, and exposure to mercury, particularly for women of childbearing age. The legislation would amend the Toxic Substances Control Act to prohibit the manufacture of chlorine or caustic soda using mercury technology and the export of mercury, mercury compounds, and mixtures containing mercury. The Secretary of Energy would be required to develop a storage system for mercury, mercury compounds, and mixtures containing mercury from chlorine-caustic soda plants. Additionally, the owners of chlorine-caustic soda plants would be required to report to the U.S. Environmental Protection Agency (EPA) and to the State in which the facility was located on mercury content in products, emissions, and waste. The legislation would require the EPA to conduct a mercury inventory covering the closure of chlorine-caustic soda facilities that ceased operations on or after January 1, 2009, and obtain mercury purchase records and other information from each facility so as to determine mercury releases from the facility into the environment (U.S. Congress, 2009).

The EPA proposed a significant new use rule under the Toxic Substances Control Act of 1976 for elemental mercury used in flow meters, natural gas manometers, and pyrometers. This action required manufacturers and importers to notify the EPA at least 90 days before beginning the mercury-related activity. The notification would provide EPA with the opportunity to evaluate

the intended use, and if necessary, limit or prohibit the activity (U.S. Environmental Protection Agency, 2009a).

The EPA proposed to reduce mercury emissions from portland cement kilns, which are the fourth-leading source of mercury air emissions in the United States. The proposal set limits on emissions from existing kilns and strengthened mercury-emissions limits on new kilns. When fully implemented in 2013, the EPA estimated that this rule would reduce annual mercury emissions by 81% or 5 t (U.S. Environmental Protection Agency, 2009b).

The Mercury Export Ban Act of 2008 (Public Law 110–414), also known as MEBA, which was signed by the President in October 2008, prohibited sale and transfer of elemental mercury after January 1, 2013, and addressed long-term storage of elemental mercury. However, the MEBA did not ban the export of mercury compounds. Therefore, as required under section 4 of the MEBA, the EPA published and submitted to Congress, a report on mercuric chloride, mercurous chloride or calomel, mercuric oxide, and other mercury compounds that may be used in significant quantities. The report included an analysis of the sources and amounts of each mercury compound imported into or manufactured in the United States annually; applications of the compounds, the amounts used, and estimated amounts for 2010 and beyond; the sources and amounts of each mercury compound exported from the United States annually from 2006 through 2008; the potential for these compounds to be processed into elemental mercury after export from the United States; and other relevant information (U.S. Environmental Protection Agency, 2009c, p. 3).

Many State and municipal wastewater treatment plants worked toward reducing mercury releases in wastewater from dental offices. Therefore, on December 29, 2008, the EPA signed a memorandum of understanding with the American Dental Association and the National Association of Clean Water Agencies to establish and monitor the effectiveness of a voluntary dental amalgam discharge reduction program. The purpose was to have dental offices install and maintain amalgam separators and recycle the amalgam waste. The program will also track the percentage of dental offices that install and used amalgam separators (U.S. Environmental Protection Agency, 2008).

The U.S. Geological Survey (USGS) published a report on mercury in top-predator fish, bed sediment, and water from streams in the United States. Sites were sampled to determine regional and national gradients of mercury source and strength that would influence bioaccumulation of methylmercury. Mercury in fish at 27% of the sampled sites exceeded the EPA human health criterion of 0.3 micrograms per gram ($\mu\text{g/g}$) weight. These sites were geographically widespread (Scudder and others, 2009, p. 2).

Mercury was widely used in small-scale gold mining in Latin America and it was common to burn the mercury-gold amalgam in the gold shops in order to purify the gold for sale—a practice that has become a source of mercury pollution in the shops and in the nearby communities (Habegger and others, 2008, p. 5).

Owing to increased gold prices, many small-scale gold miners have moved to the Amazon region of Peru, which is the world's fifth leading gold producer, to search for placer gold. This has brought about increased use of mercury in Peru and mercury releases to the environment (Keane, 2009). The EPA continued its efforts to provide its mercury reduction technology to gold shops in Brazil, Peru, and other parts of Latin America and partnered with colleagues from the USGS, the U.S. Embassy, Lima, and Peruvian Government officials in order to work more effectively on this problem. The introduction of mercury emission reduction technology to gold shops in Peru resulted from a USGS in-country study of mercury use in Peru (Brooks and others, 2007, p. 7).

The National Defense Stockpile (NDS) held an inventory of 4,436 t of mercury at several sites in the United States. Mercury sales from the NDS were suspended in 1994 in response to environmental concerns. In 2004, the DLA indicated that the mercury would be consolidated at one site in Nevada (Joseph Johnson, specialist, Defense Logistics Agency, written commun., April 30, 2004). The U.S. Department of Energy has 1,329 t of mercury in storage facilities in Oak Ridge, TN. In 2009, seven States were considered as possible mercury storage sites for the Nation's excess mercury; these were Colorado, Idaho, Missouri, Nevada, South Carolina, Texas, and Washington (Dinny, 2009). Hearings on mercury storage were held in Grand Junction, CO, and Kansas City, MO, with most attendees indicating opposition to mercury storage in or near their communities. The Governor of Idaho indicated that he will oppose the use of the Idaho National Laboratory for mercury storage and the State of Washington wants to make sure that potential mercury storage at its Hanford Site would not interfere with current environmental cleanup owing to earlier treatment and storage of radioactive waste (Cary, 2009).

Production

In 2009, byproduct mercury was produced at several precious metals mines in Nevada and was imported from foreign sources. The mercury was processed and refined for resale (Bethlehem Apparatus Co., Inc., 2009b). Data on the amount of byproduct mercury produced in the United States were not available. Mercury has not been mined as a principal product in the United States since 1992, when the McDermitt Mine in Nevada closed.

Consumption

In 2009, less than 100 metric tons per year of mercury was consumed domestically. Domestic mercury consumption was broadly estimated to be about 50% for chlorine-caustic soda manufacture and 50% for other uses (Brooks and Matos, 2005, p. 3). Compact fluorescent lamps, which contain 3 to 5 milligrams (mg) of mercury, were promoted as alternatives to standard fluorescent lamps (Von Ahn, 2007).

Global human health and environmental concerns about mercury have caused a decline in mercury purchases by the chlorine-caustic soda industry as well as an overall market shift in the chlorine-caustic soda industry from mercury cell technology toward nonmercury chlorine production technology. Since 1995, total annual mercury used by the industry has been reduced by 97%. In 1996, there were 14 operating mercury cell plants and at yearend 2008, 5 mercury cell plants were in operation in the United States, and 1 plant

converted to membrane technology in 2009. Therefore, only four mercury-cell facilities were expected to be in operation in the United States by yearend 2009. These include mercury-cell facilities in Georgia, Ohio, Tennessee, and West Virginia (Lydersen, 2009). Mercury use at yearend 2008 was 4 t and mercury purchases were 1.2 t; however, mercury purchases do not equate to mercury use owing to process upgrades and longer piping runs that require more mercury (Chlorine Institute, Inc., The, 2009). As mercury-cell plants close around the world, that mercury, as well as mercury from remediation of the plant facilities and soil, will become available for recycling and sale.

Chlorine-caustic soda industry emissions are a very small portion, approximately 2.5%, of the total mercury emitted in the United States. Mercury releases to the environment from the chlorine-caustic soda industry were approximately 2 t in 2008, which was an 83% reduction in mercury releases since 2001 (Chlorine Institute, Inc., The, 2009).

Owing to the concern over the environmental impact of mercury, a stabilization process has been developed in the United States. This process converts mercury into a high-purity mercury sulfide with the same physical and chemical characteristics of naturally occurring cinnabar. The mercury sulfide is then blended with polymers resulting in a red, 7 millimeter (mm) × 7 mm pellet that is suitable for land disposal. This product is currently acceptable for disposal in landfills in Canada and awaits certification from the EPA for disposal in the United States (Bethlehem Apparatus Co., Inc., 2009a).

Recycling

Mercury was reclaimed from end-of-service automobile convenience switches, dental amalgam, fluorescent lamps, laboratory and medical devices, and thermostats in 2009. The National Vehicle Switch Recovery Program was started in 2006 to stop toxic emissions of mercury when cars are scrapped and then melted to make new steel. From 2006 through 2009, the National Vehicle Mercury Switch Recovery Program was supported by payments to dismantlers from the auto and steel industries. Payments were as much as \$4 per switch, and the cumulative amount of mercury kept out of furnaces was 3 t (Schaffer, 2009). These and other mercury-containing materials were treated in multistep high-temperature retorts in which the mercury was first volatilized and then condensed for purification and sale (Brooks and Matos, 2005, p. 1).

Owing to Public Law 110–140 and the ban on incandescent bulbs, compact fluorescent lamps, which contain 3 to 5 mg of mercury, have been added to the list of recyclable products. Lamp manufacturers and recyclers encouraged consumers to return the used lamps for recycling by providing shipping materials or collection programs (National Electrical Manufacturers Association, 2008).

Byproduct mercury from domestic and foreign sources and mercury reclaimed from end-of-service products were processed or “recycled” in the United States and then sold into the international metals market. No data were available on the amount of mercury recycled from these respective sources.

In 2009, the major companies that recycled mercury included AERC.com, Inc., Allentown, PA; Bethlehem Apparatus Co., Inc., Bethlehem, PA; Clean Harbors Environmental Services,

Inc., Braintree, MA; D.F. Goldsmith Chemical and Metal Corp., Evanston, IL; Mercury Waste Solutions, Mankato, MN; and Onyx Environmental Services, Lombard, IL. Mercury Recyclers maintains a list of as many as 50 companies whose role was mainly collection of mercury-containing materials that would ultimately be moved on to the larger companies for retorting (Mercury Recyclers, 2009).

In 2009, Thermostat Recycling Corp. (TRC) (Rosslyn, VA) reported that national collection of mercury-containing thermostats increased by 16%, to 580 kg in 2008 from 500 kg in 2007. There were 45 States that participated in the collection program, and a total of 135,604 thermostats were collected, with each containing from 2.5 to 10 grams of mercury (Tibbets, 2009).

Prices

In 2009, domestic mercury prices ranged from \$600 to \$700 per flask from January to early August, then ranged from \$500 to \$600 per flask for the remainder of the year (Platts Metals Week, 2009). The price of mercury is a product of a diminished supply of mercury from recycled mercury-containing products, fluctuations in imports of mercury, and fluctuations in domestic byproduct production of mercury. Increased gold prices in 2009, to as high as \$1,215 per troy ounce, have resulted in growth in the global demand for mercury for small-scale gold mining. For comparison, in 2000–03, the average price of gold was \$310 per troy ounce and the average price of mercury was \$140 per flask.

Foreign Trade

In 2009, mercury imports totaled 206 t and exports totaled 753 t. Peru (92 t) and Chile (88 t) were the leading sources of imported mercury, produced as a byproduct of large-scale precious metals mining. The Netherlands (414 t), Peru (110 t), and India (107 t) were the principal destinations for mercury exported in 2009. Mercury exported to the Netherlands may be held in warehouses for sale and shipment to global destinations (Fialka, 2006). Mercury imports in 2009 were 33% more than those in 2008. Imports of mercury may vary from year to year, possibly owing to stockpiling of byproduct mercury produced at foreign gold smelters before shipment or upon closure of chlorine-caustic soda plants.

In 2009, a total of 14 t of amalgam, which contains some amount of mercury but is not otherwise chemically defined, was imported into the United States. Principal source countries were Germany (4 t), Mexico (3 t), and the United Kingdom (2 t). A total of 154 t of amalgam was exported from the United States. Principal destination countries were Hong Kong (20 t), Mexico (18 t), Japan (16 t), and China (15 t). Some of this may have been mercury-containing chlorine-caustic soda waste.

World Review

In 2009, world mercury mine production was estimated to be 1,920 t. China was the leading producer (1,400 t) followed by Kyrgyzstan (250 t). Peru produced 140 t of mercury as a byproduct of precious metals processing. Production estimates have a high degree of uncertainty because most companies and countries do not report primary (including byproduct) or secondary production data owing to environmental and health concerns.

European Union.—Euro Chlor (Brussels, Belgium), representing the European chlorine-caustic soda industry,

welcomed the voluntary agreement by chlorine producers to ensure safe disposal of the thousands of tons of mercury that come from decommissioned chlorine-caustic soda plants. On December 4, Euro Chlor met its first deadline in the European Union regulation on export ban and storage, which required that quantities of metallic mercury on chlorine-caustic soda sites be reported. Euro Chlor volunteered to gather the data from member companies in order to facilitate the report, and the total amount of mercury on site was 8,480 t (Euro Chlor, 2009). Euro Chlor and its member companies had previously signed the Euro Chlor voluntary agreement on safe storage of decommissioned mercury once the European export ban on mercury becomes effective in 2011 (Metal-Pages, 2008a).

China.—Mercury has been mined in the Wanshan District, Guizhou Province, for 4,000 years, and cinnabar was used in ancient China as a pigment and as a medicine to promote longevity (Liu, 2005). Guizhou is known as the “mercury capital” of China and more than 60% of China’s mercury occurrences were discovered in this Province. China is the world’s leading producer of mercury and 1,400 t (estimated) was produced in 2009.

In China, mercury emissions come from artisanal cinnabar retorting and zinc smelting in Guizhou, which is also one of the largest coal-producing provinces in China. Mercury content of the coal is significantly elevated when compared with the average mercury content of Chinese coal (Feng and others, 2005; Feng, 2006). The 2009 International Conference on Mercury as a Global Pollutant was sponsored by the Chinese Academy of Sciences, the Chinese Society of Mineralogy, Petrology, and Geochemistry, and the State Key Laboratory of Environmental Geochemistry. Papers were presented on health impacts of mercury, pollution control, mercury methylation, environmental monitoring, and other topics (International Conference on Mercury as a Global Pollutant, 2009). Mercury has also been produced as a byproduct of gold mining and from mercury mines in the Upper Yangtze, Kuniun-Qinling, Sanjiang, and South China metallogenic regions (Lixian and Ruolan, 1992, p. 147).

Japan.—The Nomura Kohsan Co. Ltd. (Tokyo, Japan), which began as owners of the Itomuka Mine (mercury) that closed in 1974 in Hokkaido Prefecture, was the only company in Japan with treatment facilities for mercury-contaminated waste, and including mercury-containing batteries, fluorescent lamps, switches, and thermometers. Approximately 15 t was recovered from end-of-service mercury-containing devices and approximately 75 t was recovered from nonferrous metals refineries in 2009 (Nomura Kohsan Co., Ltd., 2009). More than 78% of solid waste in Japan is incinerated; therefore, control of mercury emissions from the incinerators is important. Activated carbon technology has been shown to reduce mercury emissions by 30% (Takaoka and others, 2002).

Kyrgyzstan.—The Haidarkan mercury mine and smelter in the Batken District, southern Kyrgyzstan, was the only known mercury mine in the world which continued to sell its product to the global market, and in 2008, the mine produced 300 t of mercury. The Haidarkan Mine complex remained open because of the demand for mercury, the lack of international controls, and the fact that the mine is a source of income for the region (Kirby, 2009, p. 10). The Government planned to sell 99.98% of its shares at auction. The Haidarkan plant is the largest producer of mercury in central Asia; however, since the beginning of

2009, output at Haidarkan has declined owing to depletion of the ore, lower ore grade, difficult working conditions, and a shortage of skilled workers (Metal-Pages, 2009).

The global reduction of the mercury supply has been identified as a priority by the United Nations Environment Programme (UNEP) Governing Council, which considers primary mercury mining as an important activity to be studied in order to reduce global emissions of mercury to the environment. Therefore, UNEP carried out a multiagency assessment funded by the Government of Switzerland and UNEP. The report indicated that Haidarkan continued to operate despite technical difficulties and debate about its environmental impact. Haidarkan management planned to increase mining operations and mercury output as well as widen the range of products to include antimony and cement. Waste material from mercury production would be used in cement production, which could result in increased mercury released to the environment owing to high mercury concentration (approximately 200 parts per million) in the slag emitted during cement production. Other problems include poor awareness of environmental and human health issues among the general population and the importance of fencing hazardous waste sites. However, the mine has regional support owing to the role of the mine in the regional economy and Haidarkan provides a livelihood for 1,000 miners (Novikov and others, 2008, p. 4).

Mexico.—Cinnabar mining dates to 1000 B.C. in Mexico (Consejo de Recursos Minerales, 1992, p. 21) and mercury imported from Spain and Peru was used for colonial silver processing in Mexico (Craddock, 1995, p. 216). In 2003, near Zacatecas, Mexico, there were four plants that were extracting mercury, silver, and gold from tailings that date to A.D. 1550–1900 when mercury was widely used in the amalgamation process to produce silver. It was estimated that 13,000 to 34,000 t of mercury was discarded in the extraction of silver (Ogura and others, 2003, p. 167).

Potential mercury reserves in Mexico were estimated to be 26,900 t including production from colonial tailings (14,900 t), primary mercury mines (11,700 t), and chlorine-caustic soda industry stocks (250 t). Small-scale mercury production also takes place but was not quantified. Colonial tailings are also present in the State of San Luis Potosi; however, these have not been quantified. Mexico has recovered mercury from colonial tailings, small-scale primary mercury mines, imported mercury from developed countries, and exported mercury to Argentina, Brazil, Colombia, and Peru (Castro Diaz, 2008, p. 9).

Peru.—Cinnabar was used as a pigment and the mercury was retorted and used to process gold in ancient Peru (Petersen, 1970, p. 87). Geochemical studies of lake sediment cores, combined with ¹⁴C dates, by university researchers indicated that mercury was mined at Huancavelica, Peru, the largest mercury occurrence in the New World, more than 3,000 years ago (Cooke and others, 2009). After European contact, the mercury was also used for Spanish colonial silver processing; however, mining at Huancavelica stopped in the 1990s. In 2009, 92 t of byproduct mercury from Peru's large-scale mines was recovered and shipped to the United States for processing, resale, and shipment to metals dealers in Europe to ultimately be used for small-scale gold mining, as well as chlorine-caustic soda

production and dental amalgam. Destinations in Latin America included Brazil, Colombia, Ecuador, Guyana, and Peru (Brooks and others, 2007, p. 35).

Outlook

Global mercury use is expected to decline with the exception of mercury used for the growing compact fluorescent lamp industry and in small-scale gold mining. Mercury has been used since ancient times for small-scale gold mining, and if gold prices continue to rise, they are expected to increase the demand for mercury used in today's worldwide, small-scale gold mining industry. Rising gold prices would also stimulate gold exploration, resulting in the opening of new large-scale mines. This would, in turn, ultimately result in continued byproduct mercury production from the processing of ore from these large-scale gold mines.

Galinstan is an alloy which is liquid at room temperatures and, owing to the low toxicity of its component metals, is a replacement for mercury. Owing to its higher reflectivity and lower density than mercury, galinstan is being considered as a replacement for mercury in liquid mirror telescopes for astronomy (Metal-Pages, 2008b). Mercury dental amalgam, which is less aesthetically pleasing, was used less in favor of ceramic material with more natural colors. Closure of mercury cell chlorine-caustic soda production facilities worldwide owing to pressure from international environmental and health organizations was expected to result in release of large amounts of mercury for disposal, recycling, or storage.

Recycled mercury from mercury cell chlorine-caustic soda plants, byproduct mercury recovered from domestic and foreign gold operations, and mercury contained in the NDS are expected to be more than adequate to meet domestic needs.

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GENERAL SOURCES OF INFORMATION

U.S. Geological Survey Publications

Historical Statistics for Mineral and Material Commodities in the United States. Data Series 140.

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TABLE 1
SALIENT MERCURY STATISTICS¹

(Metric tons unless otherwise specified)

	2005	2006	2007	2008	2009	
United States:						
Secondary production, industrial	NA	NA	NA	NA	NA	
Imports for consumption	212	94	67	155	206	
Exports	319	390	84	732	753	
Industry stocks, yearend ²	38	19	18	24	30	
Chloralkali	35	17	16	20	27	
Other	3	2	2	4	3	
Industrial consumption	40	38	31	NA	NA	
Price, average, free market ³	dollars per flask	555	670	530	600	600
World, mine production	1,520	1,150	1,200	1,320	1,920 ^e	

^eEstimated. NA Not available.

¹Data are rounded to no more than three significant digits, except prices.

²Stocks at consumer and dealers only.

³Source: Platts Metal Week.

TABLE 2
U.S. IMPORTS AND EXPORTS OF MERCURY, BY COUNTRY¹

Country	2008		2009	
	Quantity, gross weight (metric tons)	Value (thousands)	Quantity, gross weight (metric tons)	Value (thousands)
Imports:				
Canada	4	\$34	5	\$24
Chile	--	--	88	195
China	(2)	4	--	--
Germany	14	1,070	14	970
Japan	--	--	(2)	5
Peru	136	562	92	104
Russia	--	--	7	42
United Kingdom	(2)	13	(2)	8
Other	1	13	--	--
Total	155	1,700	206	1,350
Exports:				
Australia	10	167	21	340
Brazil	4	63	(2)	7
Canada	6	54	2	15
Chile	--	--	2	62
Colombia	--	--	4	75
Guatemala	--	--	13	123
Guyana	9	151	4	15
India	26	488	107	1,280
Korea, Republic of	(2)	16	7	154
Mexico	(2)	4	10	144
Netherlands	535	6,960	414	5,560
Peru	13	227	110	1,580
Singapore	4	77	16	261
Vietnam	121	1,810	41	605
Other	4	73	2	32
Total	732	10,100	753	10,300

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Less than ½ unit.

TABLE 3
U.S. IMPORTS AND EXPORTS OF AMALGAMS¹ OF PRECIOUS METALS,
WHETHER OR NOT CHEMICALLY DEFINED, BY COUNTRY²

Country	2008		2009	
	Quantity, gross weight (metric tons)	Value (thousands)	Quantity, gross weight (metric tons)	Value (thousands)
Imports:				
Argentina	2	\$25,900	1	\$12,200
Germany	5	24,100	4	7,220
Italy	3	4,890	1	915
Japan	(3)	538	1	467
Mexico	1	1,190	3	6,130
United Kingdom	1	4,180	2	2,910
Other	3 ^r	6,080 ^r	2	1,420
Total	15	66,800	14	31,300
Exports:				
Canada	17	13,700	12	2,940
China	2	35,500	15	52,300
Costa Rica	2	27	10	82
Dominican Republic	18	28	(3)	35
France	1	2,690	1	6,360
Germany	25	7,920	11	14,200
Hong Kong	19	19,900	20	1,370
India	192	39,800	6	17,300
Japan	2	28,900	16	25,100
Korea, Republic of	70	7,320	5	5,460
Mexico	47	211,000	18	27,900
Netherlands	13	30,600	14	22,700
Peru	37	271	(3)	21
Singapore	23	9,260	3	4,010
Taiwan	20	38,900	1	14,000
United Arab Emirates	388	545	--	--
United Kingdom	21	32,600	4	4,950
Other	28	84,600	17	39,500
Total	925	564,000	154	238,000

^rRevised. -- Zero.

¹An alloy of mercury with one or more other metals.

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Less than ½ unit.

TABLE 4
MERCURY: WORLD MINE PRODUCTION, BY COUNTRY^{1,2,3}

(Metric tons)

Country	2005	2006	2007	2008	2009 ^c
Algeria	(4)	--	--	--	--
China ^e	1,100	760	800	800	1,400
Finland	20	20	20	20	15
Kyrgyzstan	200	250	250	250	250
Mexico ^e	6	8	8	21	21
Morocco ^e	10	10	10	10	10
Peru, exports ⁵	102	22	34 ^e	136	140 ^p
Russia ^e	50	50	50	50	50
Spain	NA	NA	NA	NA	NA
Tajikistan ^e	30	30	30	30	30
United States ⁵	NA	NA	NA	NA	NA
Total	1,520	1,150	1,200	1,320	1,920

^cEstimated. ^pPreliminary. NA Not available. -- Zero.

¹World totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Table includes data available through April 20, 2010.

³Canada and Chile were thought to produce byproduct mercury, but information on their production was inadequate to make reliable estimates.

⁴Less than ½ unit.

⁵Byproduct mercury.