

SILVER

(Data in metric tons¹ of silver content unless otherwise noted)

Domestic Production and Use: In 2014, the United States produced approximately 1,170 tons of silver with an estimated value of \$718 million. Silver was produced at 3 silver mines and as a byproduct or coproduct from 39 domestic base- and precious-metal mines. Alaska continued as the country's leading silver-producing State, followed by Nevada. There were 24 U.S. refiners that indicated production of commercial-grade silver, with an estimated total output of 2,200 tons from domestic and foreign ores and concentrates, and from old and new scrap. The physical properties of silver include high ductility, electrical conductivity, malleability, and reflectivity. In 2014, the estimated uses for silver were electrical and electronics, 42%; coins and medals, 35%; photography, 13%; jewelry and silverware, 7%; and other, 3%. Other applications for silver include use in bandages and pharmaceuticals for wound care, batteries, bearings, brazing and soldering, catalytic converters in automobiles, cell phone covers to reduce the spread of bacteria, clothing to minimize odor, electroplating, inks, mirrors, solar cells, water purification, and wood treatment. An emerging use of silver is in athletic clothing where biosensing silver fibers may be woven directly into the fabric. This athletic clothing transmits biometric data such as the wearer's real-time heartbeat to a sensor that displays the data. Silver metal in fine powder form is also being used in 3D printing to make jewelry and various other items. Silver was used for miniature antennas in radio frequency identification devices that were used in casino chips, toll road transponders, gasoline speed purchase devices, passports, and on packages to keep track of inventory shipments. Mercury and silver, the main components of dental amalgam, are biocides, and their use in amalgam inhibits recurrent decay.

Salient Statistics—United States:	2010	2011	2012	2013	2014^e
Production:					
Mine	1,280	1,120	1,060	1,040	1,170
Refinery:					
Primary	819	790	796	800	800
Secondary (new and old scrap)	1,330	1,710	1,660	1,700	1,400
Imports for consumption ²	5,370	6,410	5,070	5,030	4,900
Exports ²	709	904	946	409	300
Consumption, apparent ³	7,530	7,920	5,930	6,620	6,900
Price average, dollars per troy ounce ⁴	20.20	35.26	31.21	23.80	19.03
Stocks, yearend:					
Industry	123	150	109	110	120
Treasury Department ⁵	498	498	498	498	498
COMEX	3,260	3,650	4,610	5,350	5,610
Employment, mine and mill, ⁶ number	814	632	709	819	792
Net import reliance ⁷ as a percentage of apparent consumption	65	64	54	59	63

Recycling: In 2014, approximately 1,400 tons of silver was recovered from new and old scrap, about 20% of apparent consumption.

Import Sources (2010–13):² Mexico, 53%; Canada, 28%; Poland, 6%; Peru, 3%; and other, 10%.

Tariff: No duties are imposed on imports of unrefined silver or refined bullion.

Depletion Allowance: 15% (Domestic), 14% (Foreign).

Government Stockpile: None.

Events, Trends, and Issues: In October 2014, the silver price averaged \$17.16 per troy ounce, 22% lower than the average October 2013 price. The overall decline in silver prices corresponded to a small drop in global industrial consumption owing to slower economic growth, particularly the eurozone, and to substitution and thrifting. Demand for silver by investors continued to increase as they sought safe-haven investments and as the price of silver decreased. On November 7, a group of 16 silver exchange traded funds (ETFs) held about 20,200 tons of silver, slightly higher than the 19,680 tons held at yearend 2013. In November, Thomson Reuters reported that the U.S. Mint had temporarily sold out of silver eagle coins owing to an increase in demand. Demand for coins was expected to increase in the fourth quarter.

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Global demand for silver in photography continued to decline, and in the United States, demand fell to about 498 tons, compared with a high of about 2,000 tons in 2000. Since 2000, demand for silver in photographic applications has steadily declined owing to increasing popularity of digital cameras. Improvements in the cameras of smartphones and tablets have contributed to the growth in digital photography. Although silver was still used in x-ray films, imaging facilities have been transitioning to digital imaging systems. Demand for silver in jewelry, electronic applications, and other industrial applications declined, while the use of silver in brazing alloys, coins, silverware, and solders increased. The use of trace amounts of silver in bandages and pharmaceuticals for wound care and minor skin infections was also increasing.

World silver mine production increased slightly to 26,100 tons, principally as a result of increased production from mines in Australia, Bolivia, China, and Peru. Domestic silver mine production rose slightly as the Lucky Friday Mine (silver-lead-zinc) in Idaho's Coeur d'Alene mining district continued to ramp up production to levels exceeding preclosure levels. The Lucky Friday Mine was closed at yearend 2011 following an accident and rock burst, and reopened in the first quarter of 2013. The Pinto Valley Mine, a copper mine in Arizona, ceased recovering byproduct silver and the Hollister Mine, a gold-silver mine in Nevada, ceased production.

World Mine Production and Reserves: Reserves for Australia and Peru were revised based on new information from Government and industry sources.

	Mine production		Reserves ⁸
	2013 ^e	2014 ^e	
United States	1,040	1,170	25,000
Australia	1,840	1,900	85,000
Bolivia	1,290	1,300	22,000
Canada	627	646	7,000
Chile	1,170	1,200	77,000
China	4,100	4,200	43,000
Mexico	4,860	4,700	37,000
Peru	3,670	3,700	98,900
Poland	1,200	1,200	85,000
Russia	1,720	1,700	NA
Other countries	4,440	4,400	50,000
World total (rounded)	26,000	26,100	530,000

World Resources: Although silver was a principal product at several mines, silver was primarily obtained as a byproduct from lead-zinc mines, copper mines, and gold mines, in descending order of production. The polymetallic ore deposits from which silver was recovered account for more than two-thirds of U.S. and world resources of silver. Most recent silver discoveries have been associated with gold occurrences; however, copper and lead-zinc occurrences that contain byproduct silver will continue to account for a significant share of future reserves and resources.

Substitutes: Digital imaging, film with reduced silver content, silverless black-and-white film, and xerography substitute for silver that has traditionally been used in black-and-white as well as color photographic applications. Surgical pins and plates may be made with tantalum and titanium in place of silver. Stainless steel may be substituted for silver flatware. Nonsilver batteries may replace silver batteries in some applications. Aluminum and rhodium may be used to replace silver that was traditionally used in mirrors and other reflecting surfaces. Silver may be used to replace more costly metals in catalytic converters for off-road vehicles.

^eEstimated. NA Not available.

¹One metric ton (1,000 kilograms) = 32,150.7 troy ounces.

²Ores and concentrates, refined bullion, and doré; excludes coinage, and waste and scrap material.

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

⁴Handy & Harman quotations.

⁵Balance in U.S. Mint only, includes deep storage and working stocks.

⁶Source: U.S. Department of Labor, Mine Safety and Health Administration. Only includes mines where silver is the primary product; Greens Creek Mine is included under zinc.

⁷Defined as imports – exports + adjustments for Government and industry stock changes.

⁸See [Appendix C](#) for resource/reserve definitions and information concerning data sources.