

SILVER

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

Domestic Production and Use: In 2018, U.S. mines produced approximately 900 tons of silver with an estimated value of \$440 million. Silver was produced at 4 silver mines and as a byproduct or coproduct from 38 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 reported production of commercial-grade silver with an estimated total output of 1,800 tons from domestic and foreign ores and concentrates and from new and old scrap. The physical properties of silver include high ductility, electrical conductivity, malleability, and reflectivity. In 2018, the estimated domestic uses for silver were electrical and electronics, 26%; jewelry and silverware, 26%; coins and medals, 13%; photography, 4%; and other, 31%. Other applications for silver include use in antimicrobial bandages, clothing, pharmaceuticals, and plastics; batteries; bearings; brazing and soldering; catalytic converters in automobiles; electroplating; inks; mirrors; photovoltaic solar cells; water purification; and wood treatment. Mercury and silver, the main components of dental amalgam, are biocides, and their use in amalgam inhibits recurrent decay.

Salient Statistics—United States:	2014	2015	2016	2017	2018^e
Production:					
Mine	1,180	1,090	1,140	1,030	900
Refinery:					
Primary	800	800	800	800	800
Secondary (new and old scrap)	1,400	1,200	1,300	1,150	1,000
Imports for consumption ²	5,000	5,930	6,160	5,040	5,400
Exports ²	380	818	289	157	160
Consumption, apparent ³	6,930	8,000	7,590	5,180	5,500
Price, average, dollars per troy ounce ⁴	19.09	15.72	17.20	17.07	15.30
Stocks, yearend:					
Industry	120	130	140	150	170
Treasury ⁵	498	498	498	498	498
New York Commodities Exchange—COMEX	5,610	5,000	5,710	7,570	9,150
Employment, mine and mill, number ⁶	1,185	1,204	1,189	896	946
Net import reliance ⁷ as a percentage of apparent consumption	63	71	68	58	65

Recycling: In 2018, approximately 1,000 tons of silver was recovered from new and old scrap, about 18% of apparent consumption.

Import Sources (2014–17):² Mexico, 50%; Canada, 27%; Peru, 5%; Republic of Korea, 4%; and other, 14%.

Tariff: Item	Number	Normal Trade Relations 12–31–18
Silver ores and concentrates, silver content	2616.10.0040	0.8 ¢/kg on lead content.
Bullion, silver content	7106.91.1010	Free.
Dore, silver content	7106.91.1020	Free.

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

Government Stockpile: The U.S. Department of the Treasury maintains stocks of silver (see salient statistics above).

Events, Trends, and Issues: The estimated average silver price in 2018 was \$15.30 per troy ounce, 10% lower than the average price in 2017. The price began the year at \$17.15 per troy ounce, increased to a high of \$17.52 per troy ounce on January 25, and then fell to a low of \$14.00 per troy ounce on November 14. The silver price range over the course of 2018 remained consistent compared with that in 2017 from January through June when prices began declining into mid-November where they settled around \$14.50 per troy ounce for the remainder of the year.

SILVER

In 2018, global consumption of silver was estimated to have decreased slightly from that of 2017. Coin and bar consumption was projected to decrease significantly for the second year in a row. This comes after record high sales in 2015. Jewelry and silverware, photography, and photovoltaics were also estimated to decrease in 2018. Of the industrial uses, consumption of silver for brazing and alloys, and electronics was expected to increase in 2018.⁸ Global yearend stocks of refined silver continued to increase and were projected to be at a 10-year high for a third consecutive year owing to a reduction of consumption in physical silver.

World silver mine production increased slightly in 2018 to an estimated 27,000 tons, principally as a result of increased production from mines in Argentina, China, and Russia. The world's top silver-producing companies experienced reductions in production owing to governmental issues with licensing, illegal mining operations, increasing tariffs, reduced ore grades, and worker strikes at various projects. Domestic silver mine production decreased by 12% in 2018 compared with that in 2017 owing to a strike at one of the four primary silver mines in the United States, which began in the second quarter of 2017, and to decreased production at mining operations in Alaska. With physical demand down and a moderate price for silver, the development of new projects has slowed as well.

World Mine Production and Reserves: Reserves for Chile, China, Peru, Poland, and Russia were revised based on new information from official Government sources.

	Mine production		Reserves ⁹
	2017	2018 ^e	
United States	1,030	900	25,000
Argentina	1,020	1,100	NA
Australia	1,200	1,200	¹⁰ 89,000
Bolivia	1,240	1,200	22,000
Chile	1,260	1,300	26,000
China	3,500	3,600	41,000
Mexico	6,110	6,100	37,000
Peru	4,300	4,300	110,000
Poland	1,290	1,300	110,000
Russia	1,120	1,200	45,000
Other countries	4,770	4,800	57,000
World total (rounded)	26,800	27,000	560,000

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 reserves and resources in the future.

Substitutes: Digital imaging, film with reduced silver content, silverless black-and-white film, and xerography substitute for traditional photographic applications for silver. Surgical pins and plates may be made with stainless steel, 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.

²Silver content of base metal ores and concentrates, refined bullion, and dore; excludes coinage, and waste and scrap material.

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

⁴Engelhard's industrial bullion quotations. Source: Platts Metals Week.

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.

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

⁸Wiebe, Johann, 2018, Silver survey update 2018—The Silver Institute—2018 interim report: GFMS, Thompson Reuters, November 15, 2 p.

⁹See Appendix C for resource and reserve definitions and information concerning data sources.

¹⁰For Australia, Joint Ore Reserves Committee-compliant reserves were about 26,000 tons.