SILVER

(Data in metric tons[1] of contained silver unless otherwise noted)

Domestic Production and Use: In 2022, U.S. mines produced approximately 1,100 tons of silver with an estimated value of $720 million. Silver was produced at 4 silver mines and as a byproduct or coproduct from 31 domestic base- and precious-metal operations. 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 2,700 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 2022, the estimated domestic uses for silver were physical investment (bars), 34%; electrical and electronics, 27%; coins and medals, 13%; photovoltaics (PV), 10%; jewelry and silverware, 6%; brazing and solder, 3%; and other industrial uses and photography, 7%. 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; photography; 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:	**2018**	**2019**	**2020**	**2021**	**2022[e]**
Production:					
Mine	934	981	1,080	1,020	1,100
Refinery:					
Primary	1,420	1,360	1,400	1,920	1,800
Secondary (new and old scrap)	632	627	582	908	900
Imports for consumption[2]	4,840	4,760	6,730	6,160	4,600
Exports[2]	604	220	140	137	230
Consumption, apparent[3]	5,780	6,270	8,250	7,950	6,400
Price, bullion, average, dollars per troy ounce[4]	15.73	16.24	20.58	25.23	21
Stocks, yearend:					
Industry	170	52	55	56	50
Treasury[5]	498	498	498	498	498
New York Commodities Exchange—COMEX	9,150	9,860	12,334	11,064	9,200
Employment, mine and mill, number[6]	971	995	1,180	1,440	1,300
Net import reliance[7] as a percentage of apparent consumption	73	74	80	76	69

Recycling: In 2022, approximately 900 tons of silver was recovered from new and old scrap, accounting for about 14% of apparent consumption.

Import Sources (2018–21):[2] Mexico, 47%; Canada, 21%; Poland, 5%; Chile, 4%; and other, 23%.

Tariff: Item	**Number**	**Normal Trade Relations 12–31–22**
Silver ores and concentrates	2616.10.0040	0.8 ¢/kg on lead content.
Bullion	7106.91.1010	Free.
Dore	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 2022 was $21 per troy ounce, 17% lower than the average price in 2021. The price began the year at $22.80 per troy ounce, increased to a high of $26.45 per troy ounce on March 8, then decreased to a low of $17.85 per troy ounce on September 1. The price of silver began to increase in September into December.

Prepared by **Micheal W. George [Contact Anne M. Hartingh, (703) 648–4985, ahartingh@usgs.gov]**

SILVER

In 2022, global consumption of silver was estimated to have reached 38,000 tons, a new record and a 16% increase from that in 2021. Coin and bar consumption increased by 18% in 2022, increasing for the sixth year in a row. Physical investment in India nearly doubled compared with that in 2021. In 2022, consumption of silver for industrial uses was estimated to have increased by 5% compared with that in 2021 owing to the installation of fifth-generation (5G) telecommunications infrastructure, increased production of PV, increased production of light duty vehicles (LDVs), and more silver used in newer LDVs. Consumption of silver in jewelry and silverware was estimated to have increased by 29% and 72%, respectively.[8]

World silver mine production increased by 4% in 2022 to an estimated 26,000 tons, principally as a result of increased production from mines in Chile and other countries as silver mines were still recovering from shutdowns in 2020 in response to the coronavirus disease 2019 (COVID-19) pandemic. Domestic silver mine production was estimated to have increased by 8% in 2022 to 1,100 tons compared with 1,020 tons produced in 2021.

World Mine Production and Reserves: Reserves for Australia, China, Peru, and Poland were revised based on Government reports. Reserves for Argentina and the United States were revised based on company reports.

	Mine production		Reserves[9]
	2021	2022[e]	
United States	1,020	1,100	23,000
Argentina	[e]720	840	6,500
Australia	1,360	1,400	[10]92,000
Bolivia	1,290	1,300	22,000
Chile	1,280	1,600	26,000
China	3,500	3,600	71,000
India	[e]610	630	7,200
Mexico	6,110	6,300	37,000
Peru	3,310	3,100	98,000
Poland	1,300	1,300	65,000
Russia	1,320	1,200	45,000
Other countries	3,200	3,500	57,000
World total (rounded)	25,000	26,000	550,000

World Resources:[9] Although silver was a principal product at several mines, silver was primarily obtained as a byproduct from lead-zinc, copper, and gold mines, in descending order of silver 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.

[e]Estimated.

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

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

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

[4]Engelhard's industrial bullion quotations. Source: S&P Global Platts Metals Week.

[5]Source: U.S. Mint. Balance in U.S. Mint only; includes deep storage and working stocks.

[6]Source: U.S. Department of Labor, Mine Safety and Health Administration (MSHA). Only includes mines where silver is the primary product.

[7]Defined as imports – exports ± adjustments for Government and industry stock changes.

[8]Source: DiRienzo, Michael, and Newman, Philip, 2022, Global silver demand rising to a new high in 2022: Silver Institute press release, November 17.

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

[10]For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 27,000 tons.