

## SILVER

(Data in metric tons<sup>1</sup> of contained silver unless otherwise noted)

**Domestic Production and Use:** In 2021, U.S. mines produced approximately 1,000 tons of silver with an estimated value of \$830 million. Silver was produced at 4 silver mines and as a byproduct or coproduct from 33 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 2,000 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 2021, the estimated domestic uses for silver were physical investment, 26%; electrical and electronics, 21%; coins and medals, 11%; jewelry and silverware, 4%; and other, 38%. 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.

<b><u>Salient Statistics—United States:</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>	<b><u>2020</u></b>	<b><u>2021<sup>e</sup></u></b>
Production:					
Mine	1,030	934	981	1,030	1,000
Refinery:					
Primary	1,420	1,420	1,420	1,420	1,400
Secondary (new and old scrap)	490	632	643	640	650
Imports for consumption <sup>2</sup>	5,040	4,840	4,770	6,740	6,500
Exports <sup>2</sup>	157	603	220	140	160
Consumption, apparent <sup>3</sup>	6,400	5,790	6,290	8,260	8,000
Price, bullion, average, dollars per troy ounce <sup>4</sup>	17.08	15.73	16.24	20.58	25.00
Stocks, yearend:					
Industry	150	170	52	60	60
Treasury <sup>5</sup>	498	498	498	498	498
New York Commodities Exchange—COMEX	7,570	9,150	9,860	12,330	11,000
Employment, mine and mill, number <sup>6</sup>	1,050	982	1,000	1,180	1,500
Net import reliance <sup>7</sup> as a percentage of apparent consumption	76	73	74	80	79

**Recycling:** In 2021, approximately 650 tons of silver was recovered from new and old scrap, about 8% of apparent consumption.

**Import Sources (2017–20):**<sup>2</sup> Mexico, 47%; Canada, 23%; Chile, 4%; Poland, 4%; and other, 22%.

<b><u>Tariff:</u></b>	<b><u>Item</u></b>	<b><u>Number</u></b>	<b><u>Normal Trade Relations</u></b>
			<b><u>12-31-21</u></b>
	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 2021 was \$25.00 per troy ounce, 22% higher than the average price in 2020. The price began the year at \$27.51 per troy ounce, increased to a high of \$29.45 per troy ounce on February 1, then decreased to a low of \$21.75 per troy ounce on September 30. The price of silver generally decreased throughout the year. The February 1 daily price was the highest since December 11, 2020. U.S. investment was a major contributing factor to the rise in silver prices. Increased investment was driven by novice buyers from nontraditional sources in late January and early February.

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In 2021, global consumption of silver was estimated to have increased slightly from that in 2020. Coin and bar consumption increased in 2021 for the fifth year in a row, led by U.S. investments. In 2021, physical investment in the United States in silver reached an estimated 7,900 tons (250 million troy ounces) compared with 6,240 tons (201 million troy ounces) in 2020. This was partially offset by an 85% decrease in investments in India. Consumption for industrial uses was estimated to have increased in the first 6 months of 2021 owing to the reopening of economies. Consumption of silver in jewelry and silverware was estimated to have increased by 24% and 32%, respectively. Despite decreased investment in India, global physical holdings of silver reached a reported 36,600 tons (1.18 billion troy ounces) compared with 33,200 tons (1.07 billion troy ounces) in 2020.<sup>8</sup>

World silver mine production increased slightly in 2021 to an estimated 24,000 tons, principally as a result of increased production from mines in Argentina, India, Mexico, and Peru following shutdowns in 2020 in response to the global COVID-19 pandemic. Domestic silver mine production was estimated to have decreased by 3% in 2021 to 1,000 tons compared with the 1,030 tons produced in 2020.

**World Mine Production and Reserves:** Reserves for Australia, Peru, and Poland were revised based on information from Government sources.

	Mine production		Reserves <sup>9</sup>
	2020	2021 <sup>e</sup>	
United States	1,030	1,000	26,000
Argentina	710	800	NA
Australia	1,340	1,300	<sup>10</sup> 90,000
Bolivia	930	1,000	22,000
Chile	1,580	1,600	26,000
China	3,380	3,400	41,000
Kazakhstan	435	450	NA
Mexico	5,540	5,600	37,000
Peru	2,770	3,000	120,000
Poland	1,250	1,300	67,000
Russia	1,320	1,300	45,000
Other countries	3,230	3,100	57,000
World total (rounded)	23,500	24,000	530,000

**World Resources:**<sup>9</sup> 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 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.

<sup>e</sup>Estimated. NA Not available.

<sup>1</sup>One metric ton (1,000 kilograms) = 32,150.7 troy ounces.

<sup>2</sup>Silver content of base metal ores and concentrates, ash and residues, refined bullion, and dore; excludes coinage, and waste and scrap material.

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

<sup>4</sup>Engelhard's industrial bullion quotations. Source: S&P Global Platts Metals Week.

<sup>5</sup>Source: U.S. Mint. Balance in U.S. Mint only; includes deep storage and working stocks.

<sup>6</sup>Source: U.S. Department of Labor, Mine Safety and Health Administration (MSHA). Only includes mines where silver is the primary product. In 2021, MSHA changed the Mine Employment values in their publicly available database.

<sup>7</sup>Defined as imports – exports + adjustments for Government and industry stock changes.

<sup>8</sup>DiRienzo, Michael, and Newman, Philip, 2020, Key components of silver market affected by pandemic in 2020—Global demand and mine supply impacted, while physical silver investment expected to surge to a 5-year high: Silver Institute and Metal Focus, November 19, 2 p.

<sup>9</sup>See Appendix C for resource and reserve definitions and information concerning data sources.

<sup>10</sup>For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 25,000 tons.