



2005 Minerals Yearbook

SILVER

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In 2005, the United States produced 1,230 metric tons (t) of silver, a decrease of 20 t compared with 2004 silver production of 1,250 t, and accounted for 6% of global mine production of 20,200 t. Approximately 99% of domestic silver was produced from base-metal ores at 15 mines and from precious-metal ores at 10 mines. Silver was produced in 11 States in 2005, and Alaska remained the country's leading silver producer followed by Nevada, known as the "Silver State," and Idaho, famous for the Coeur d'Alene District in the Silver Valley.

Silver prices averaged \$7.34 per troy ounce in 2005, approximately 10% greater than the 2004 average of \$6.69 per troy ounce. Since 2003, the spot silver price has more than doubled and reached a high of \$9.17 in December 2005. On a global scale, traditional use categories for silver include its use in coins and medal fabrication; industrial applications, including electrical and electronics components; jewelry and silverware; and photography. The plan for holding physical silver in an exchange traded fund (ETF) may represent a new stock category for silver. Silver's well-known antibacterial properties indicate potential new applications, for example, in construction as a wood preservative and in cellular phone covers to reduce the spread of bacteria (Canadian Paediatric Society, 2002; Silver Institute, The, 2006^{§1}). In 2005, the global use of silver continued to decline in jewelry, photography, and silverware. There was increased use of silver in coin and medal fabrication and for industrial applications, specifically electronics.

U.S. imports for consumption of refined silver in 2005 totaled approximately 3,880 t, 220 t less than in 2004 (table 1). Mexico (49%) was the leading source of imported refined silver into the United States, followed by Canada (31%) and Peru (15%). Canada (38%) was the leading destination for exported silver, followed by Switzerland (29%) and the United Kingdom (11%).

In 2005, silver was mined in approximately 60 countries, and Peru was the leading producer with 3,200 t, followed by Mexico (2,900 t) and China (2,500 t). World mine production increased in 2005 by 400 t, 2% more than the 2004 production. In most countries, silver production has remained relatively stable; however, silver production in Russia more than tripled during a 3-year period to 1,350 t in 2005 from 400 t in 2002. Production was mainly from the Dukat Mine in eastern Russia, which is the world's third largest silver deposit in terms of reserves and has been Russia's leading silver mine since 1980.

Legislation and Government Programs

The primary mission of the U.S. Mint is to produce an adequate volume of circulating coinage; in 2004 and 2005, circulating coin production was 13.2 billion and 15.3 billion

coins per year, respectively (U.S. Mint, 2006[§]). The Mint's responsibilities also include custody and protection of the Nation's \$100 billion in gold and silver assets; producing proof and uncirculated coins, commemorative coins, and medals; manufacturing and selling platinum, gold, and silver bullion coins; and receiving and processing mutilated coins. Its six facilities are in Denver, CO; Fort Knox, KY; Philadelphia, PA; San Francisco, CA; Washington, DC; and West Point, NY.

Production

In the United States, silver was produced as the principal mineral commodity from the Coeur Rochester Mine, an open pit operation in northwestern Nevada, and the world's eighth leading primary silver-producing mine (Silver Institute, The, 2006[§]). Silver was also produced as a byproduct from copper, copper-molybdenum, gold, and lead-zinc ores at other mines in the United States. Domestic mine production data were obtained from 25 mines in 10 States, most of which responded to requests from the U.S. Geological Survey (USGS) for data, representing about 99% of U.S. production. Domestic mine production of silver, which totaled 1,230 t in 2005, was only slightly less than the 2004 mine production of 1,250 t.

The minor decline in overall domestic silver mine production was principally owing to reduced access to areas of the Galena Mine in Shoshone County, ID, that were being redeveloped and suspension of open pit mining at the Montana Tunnels Mine in Jefferson County, MT, in October. At the Bingham Canyon Mine in Utah, production increased owing to higher mill throughput and a rise in average silver grade (Silver Institute, The, 2006, p. 23). At the Red Dog Mine in Alaska, Teck Cominco Limited (Vancouver, British Columbia, Canada) received byproduct silver revenues for 61,300 kilograms (kg) (reported as 1,970,000 troy ounces) of silver in 2005 (Teck Cominco Limited, 2006[§]). At the Montana Tunnels Mine, reserves averaged 6.6 grams per metric ton (g/t) (reported as 0.212 troy ounces per metric ton) silver and 0.5 g/t (reported as 0.016 troy ounces per metric ton) gold (Apollo Gold Corp., 2006, p. 10). For 2005, Hecla Mining Company (Coeur d'Alene, ID) reported producing about 200,000 kg of silver at an average cost of \$2.96 per ounce. Hecla reported producing approximately 75,000 kg of silver from the Lucky Friday Mine in Idaho and approximately 90,000 kg of silver from its share of the Greens Creek Unit in Alaska (Hecla Mining Company, 2006[§]).

As of December 31, 2005, Revett Minerals Inc. (Spokane Valley, WA) reported that proven and probable ore reserves at the Troy Mine increased to about 10.9 million metric tons (Mt) of ore from 7.9 Mt as of December 31, 2004. This represents an increase in the operating life of the Troy Mine of approximately 1.4 years (Revett Minerals Inc., 2006[§]).

¹References that include a section mark (§) are found in the Internet References Cited section.

Consumption

Silver, along with copper and gold, were the metals used by ancient man for artisanal jewelry and tools. Occurrences of silver are widespread and argentiferous galena, one of silver's chief ore minerals, is relatively easy to smelt. Silver is malleable, reflective, and it has the highest electrical and thermal conductivity of all the metals. It remains one of the least expensive of the precious metals. Its physical properties and intrinsic value result in silver's wide use for coins and medal fabrication, industrial applications including electrical and electronics components, jewelry and silverware, and, photography (Etris, 1997, p. 163; Silver Institute, The, 2006, p. 10). World consumption of silver was 28,500,000 kg in 2005, up from 27,400,000 kg in 2004. Domestic consumption of silver was approximately 5,900,000 kg in 2005, up from 5,625,000 kg in 2004 (Silver Institute, The, 2006, p. 46).

Coins and Medal Fabrication.—Approximately 518,750 kg of silver was used for coins and medals in the United States in 2005, a 7% increase from the 484,000 kg used in 2004 (Silver Institute, The, 2006, p. 69). Historically, silver was more widely used than gold for coins but has been phased out of use in most circulating coins. Currently, its most significant use in this application is in medals and commemorative pieces. The Northwest Territorial Mint, Auburn, WA, produces silver, gold, platinum, and palladium commemorative and specialty coins for retirements, special events, and investments. They have a contract with Pan American Silver Corporation (Vancouver, British Columbia, Canada) and use approximately 94,000 kilograms per year of silver and look to increase that amount to about 156,000 kg in the coming years (R. B. Hansen, President, Northwest Territorial Mint, oral commun., September 22, 2006).

Industrial Applications.—Approximately 3,125,000 kg of silver was used in the United States in 2005 for industrial applications, a 6% increase from the 2,937,000 kg used in 2004 (Silver Institute, The, 2006, p. 50). Silver is used in many applications such as conductors, contacts, fuses, timers, and switches because it is an excellent electrical and thermal conductor. It is also used in conductive adhesives; in the preparation of thick-film, silver-palladium pastes for use as silkscreen circuit paths in multilayer ceramic capacitors; in the manufacture of membrane switches; in flat-screen televisions using plasma display panels; in silver-backed solar mirrors; as a silver film in electrically heated automobile windows; in smart cards; and in solar cells. A small amount of silver is used as a miniature antenna in Radio Frequency Identification Devices (RFID) that are used in passports, on packages, and to keep track of inventory shipments (Free Market News Network, 2005a§). Silver is an important component in dental amalgam and other dental applications. It is also used in the bearings in jet engines and in silver oxide batteries for cameras and watches.

Jewelry and Silverware.—The U.S. demand for silver in 2005 in this market sector was 491,000 kg, somewhat higher than the 481,000 kg used for fabrication in 2004 (Silver Institute, The, 2006, p. 62). World consumption for silver in jewelry and silverware increased by about 1% to 7,800,000 kg in 2005 from 7,750,000 kg in 2004. A tarnish-resistant sterling silver alloy containing germanium has been developed. Any tarnish

that does develop can be removed with a damp sponge, thereby eliminating the need for harsh chemicals (Silver Institute, The, 2005§).

Photography.—In the United States, silver use in photography declined from its maximum of 2,312,000 kg in 1999 to 1,750,000 kg in 2005, which was an increase of only about 2% above the 1,719,000 kg used in 2004 (Silver Institute, The, 2006, p. 58). Digital photography and electronic imaging continued to replace silver-halide use in photography, and Eastman Kodak Company announced that it would miss earnings targets in 2005 (CRU Monitor, 2005§). In the period 1999-2005, worldwide use of silver in photography continued an overall decline from a maximum of 7,125,000 kg in 1999 to 5,156,000 kg in 2005. Worldwide silver use in 2005 was approximately 10% lower than the 5,656,000 kg used in 2004. Photographic use categories included commercial photography, dental and industrial x rays, graphic arts, and medical x rays. The overall decline in the use of silver for photographic uses began in 2000 mainly because of competition from digital camera technology and the resulting decline in the production of color film.

Other.—In 2005, silver was used for batteries, bearings, brazing and soldering, catalysts, medical applications, mirrors, solar energy, and water purification (Silver Institute, The, 2006§). Its antibacterial and biocidal qualities, which have been known since antiquity, indicate applications in bandages, burn and wound care, cellular phone covers, classroom paper products, clothing to eliminate odor, contraceptives, surface disinfectants, surgical bone cements, and as a wood-preservative because it inhibits mold and mildew growth. Ionic or "colloidal" silver is recognized for its broad spectrum of antimicrobial properties and has been applied to catheters, intravenous needles, and other medical devices (Slaven, 2005, p. 2). Dental amalgam, though in declining use because of its mercury content, may contain 34% to 38% silver (Lawrence, 1995).

Prices

In 2005, the average price of silver was \$7.34 per troy ounce, which was 10% above the 2004 average price of \$6.69 per ounce. The last time that the average price of silver was above \$6.00 per ounce was in 1987 and 1988, when the average prices were \$6.99 per ounce and \$6.53 per ounce, respectively. Prices for copper, gold, and silver all rose significantly during 2005 as part of a boom in commodity investment as consumption increased at a faster rate than production (Silver Institute, The, 2006, p. 14).

Gold Exchange Traded Funds (ETF) have been available since 2003 and passage of a similarly modeled silver ETF was proposed in 2005. The proposed silver ETF was expected to increase liquidity, attract new investors, and provide advantages to investors because of the inherent difficulties of investor purchasing and storing physical silver (Free Market News Network, 2005b§).

Trade

The United States imported 3,880 t of refined silver and exported 166 t of refined silver in 2005 (table 1). The United

States exported approximately 300 t of bullion, dore, and ores and concentrates in 2005. Principal destinations for bullion were Canada (116 t), Australia (17 t), and Uruguay (17 t). Principal destinations for dore were Switzerland (88 t) and the United Kingdom (34 t).

World Review

World mine production increased to 20,200 t in 2005, a 2% increase from 19,800 t produced in 2004 (table 8). Silver production increased in the world's leading silver producing country, Peru (4%), and also in Mexico (12%) and Russia (6%). Production increased at the Dukat Mine in Russia because of expanded capacity (Silver Institute, The, 2006, p. 20). In 2005, above ground stocks of silver rose approximately 10%, to 6,931 t from 6,290 t in 2004 (Silver Institute, The, 2006, p. 30).

China.—In September 2005, The Silver Institute released a report prepared by GFMS Ltd. entitled "A Review of the Chinese Silver Market." In April, Silvercorp Metals, Inc. announced silver resources of 1,340,000 kg of silver at its Ying silver project in Henan (Silvercorp Metals, Inc., 2005§). However, most of China's silver comes from a considerable number of small mines rather than large mines. China is an importer and exporter of silver bullion, and its scrap supply comes mainly from photographic and electronic uses (GFMS Ltd., 2005§). China produced an estimated 2,500 t of silver in 2005, which was only slightly more than 2004 production of 2,450 t (table 8). The global commodities boom has encouraged nearly 60 mining companies to explore for gold in China (Antaika Precious and Minor Metals Monthly, 2005). This may ultimately result in increased byproduct silver production as new gold mines are opened.

Mexico.—In 2005, Mexico was the second leading producer of silver. Industrias Peñoles S.A. de C.V. produced 1,469,000 kg (47 million troy ounces) in 2005, a 7% increase compared with the 2004 production of 1,375,000 kg (44 million troy ounces) (Silver Institute, The, 2006, p. 20).

Peru.—Peru was the leading silver producer in 2005. Five mines in Peru are among the world's top 15 silver-producing mines. One of these, the Morococha Mine, produced approximately 84,000 kg (reported as 2.7 million troy ounces) of silver in 2005 (Pan American Silver Corporation, 2005). The overall increase in production for these five Peruvian mines, which comprised 27% of total silver production in Peru, was approximately 5%, to 858,000 kg (27.6 million troy ounces) in 2005 from 818,000 kg (26.3 million troy ounces) in 2004 (Silver Institute, The, 2006, p. 87). Silver jewelry and other goods are sold widely in the artisanal markets in Lima and in Huancayo, which is the center of small-scale artisanal silver production.

Current Research and Technology

The recent introduction of televisions with plasma display panels has boosted the demand for silver as larger sizes may contain up to a troy ounce of silver. Sales for the televisions are expected to increase to about 10 million units by 2008 (Silver Institute, The, 2006, p. 57). Bandages with trace amounts of silver (0.003%) have been approved by the U.S. Food and Drug

Administration. Lab testing of these antibacterial bandages reduced the growth of *S. aureus*, *E. coli*, *E. hirae*, and *P. aeruginosa* for 24 hours (Walgreen Co., 2005§; Wolf, 2005§).

Silver-base disinfectants have been introduced as a low cost, environmentally sensitive option for use in care centers, food processing facilities, and sports facilities. Silver is used in new contraceptives to kill disease pathogens such as *Candida* and coliform bacillus, and may prevent sexually transmitted diseases (Smith, 2005§).

Photographic waste from medical, dental, and consumer photo processing can generate approximately 100 million gallons per year of wastewater. This wastewater, which contains approximately 20 million troy ounces of silver worth \$220 million, can be treated to recover and recycle silver and produce fertilizers (John Whitney, President, Itronics, Inc., oral commun., September 22, 2006).

Outlook

In 2005, reported world silver consumption was 28,364 t, or 4% higher than the 27,313 t used in 2004 (Silver Institute, The, 2006, p. 71). Except in the United States, silver use in photography continued to fall, mainly because of a reduction in the output of color film as digital photography continued to erode the use of silver in the photographic market. The decline in traditional cameras and silver use is indicated by the installation of new digital camera systems in hospitals in Alberta, Canada (Eastman Kodak Company, 2005§). Canon, Konica, and Nikon have announced plans to leave the film-camera business (Musgrove, 2006; Noguchi, 2006). Silver use in photography is expected to level off as silver continues to be used in making high-quality prints from digital sources.

The effect of the proposed silver ETF, though similar in structure to the gold ETF, may prove to be important as silver is diverted from traditional uses for repository in the ETF. This will attract new investors and silver prices may continue to rise. Batteries and fuel cells that use metals, specifically silver, are expected to increase by 6% per year through 2007. Alkaline-base fuel cells are of interest because they have cost and technical advantages that include the ability to use nonplatinum, and therefore, less expensive, catalysts such as gold or silver (Freedonia Group, The, 2005§). Silver's uses in construction, electronics, medicine, superconductivity, water purification, wood preservatives, wound care, and many others will continue to increase.

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GENERAL SOURCES OF INFORMATION

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TABLE 1
 SALIENT SILVER STATISTICS¹

		2001	2002	2003	2004	2005
United States:						
Mine production:						
Quantity	metric tons	1,740	1,350	1,240	1,250	1,230
Value	thousands	\$245,000	\$201,000	\$196,000	\$268,000	\$289,000
Refinery production:						
Domestic and foreign ores and concentrates	metric tons	2,640	2,580	2,580	1,140	2,530
Scrap (old and new)	do.	1,060	1,030	1,010	1,920	981
Exports, refined	do.	783	680	181	422	166
Imports for consumption, refined	do.	3,340	4,300	4,510	4,100	3,880
Stocks, December 31:						
Industry	metric tons	360	280	93	131	86
Futures exchanges	do.	3,250	3,290	3,430	3,580	3,380
U.S. Department of the Treasury	do.	220	220	220	220	NA
National Defense Stockpile	do.	21	--	--	--	NA
Price, average ²	dollars per troy ounce	\$4.39	\$4.62	\$4.91	\$6.69	\$7.34
Employment, mine and mill workers ³		1,100	1,100	1,200	NA	NA
World, mine production	metric tons	18,700 ^r	18,800 ^r	18,800 ^r	19,800 ^r	20,200 ^e

^eEstimated. ^rRevised. NA Not available. -- Zero.

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

²Price data are the annual Handy & Harman quotations published in Platts Metals Week.

³Employment data are from the Mine Safety and Health Administration.

TABLE 2
MINE PRODUCTION OF SILVER IN THE UNITED STATES, BY STATE¹

(Kilograms)

State	2003	2004	2005
California	958	801	W
Nevada	322,000	302,000	276,000
Other ²	916,000	943,000	949,000
Total	1,240,000	1,250,000	1,230,000

W Withheld to avoid disclosing company proprietary data; included with "Other."

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

²Includes Alaska, Arizona, California, Colorado, Idaho, Missouri, Montana, New Mexico, South Dakota, and Utah.

TABLE 3
LEADING SILVER-PRODUCING MINES IN THE UNITED STATES IN 2005, IN ORDER OF OUTPUT¹

Rank	Mine	County and State	Operator	Source of silver
1	Greens Creek	Juneau, AK	Kennecott Greens Creek Mining Co.	Zinc ore.
2	Red Dog	Northwest Arctic, AK	Teck Cominco Alaska Inc.	Lead-zinc ore.
3	Coeur Rochester	Pershing, NV	Coeur d'Alene Mines Corp.	Silver ore.
4	Bingham Canyon	Salt Lake, UT	Kennecott Utah Copper Corp.	Copper-molybdenum ore.
5	Lucky Friday	Shoshone, ID	Hecla Mining Company	Silver ore.
6	Midas	Elko, NV	Newmont Mining Corporation	Gold ore.
7	Galena	Shoshone, ID	Silver Valley Resources Corp.	Silver ore.
8	Round Mountain	Nye, NV	Kinross Gold Corporation	Gold ore.
9	Brushy Creek	Reynolds, MO	Doe Run Resources Corp.	Lead ore.
10	Bagdad	Yavapai, AZ	Phelps Dodge Corp.	Copper-molybdenum ore.
11	Montana Tunnels	Jefferson, MT	Apollo Gold Corp.	Gold ore.
12	Continental Pit	Silver Bow, MT	Montana Resources	Copper-molybdenum ore.
13	Fletcher	Reynolds, MO	Doe Run Resources Corp.	Lead ore.
14	Eastern Nevada Operations	Elko, Eureka, NV	Newmont Mining Corporation	Gold ore.
15	Buick	Iron, MO	Doe Run Resources Corp.	Lead ore.
16	Mission Complex	Pima, AZ	ASARCO Incorporated	Copper ore.
17	Denton-Rawhide	Mineral, NV	Kennecott Minerals Company	Gold ore.
18	Chino	Grant, NM	Phelps Dodge Corp.	Copper-molybdenum ore.
19	Viburnum (#28 and #35)	Iron, MO	Doe Run Resources Corp.	Lead ore.
20	Sweetwater	Reynolds, MO	do.	Do.
21	Meikle	Elko, NV	Barrick Gold Corporation	Gold ore.
22	Ray	Pinal, AZ	ASARCO Incorporated	Copper ore.
23	Betze-Post	Eureka, NV	Barrick Gold Corporation	Gold ore.
24	Cresson	Teller, CO	Cripple Creek & Victor Gold Mining Co.	Do.
25	Kettle River	Ferry, WA	Kinross Gold Corporation	Do.

¹The mines on this list accounted for 99% of U.S. mine production in 2005.

TABLE 4
U.S. EXPORTS OF SILVER, BY COUNTRY¹

Year and country	Silver ores and concentrates		Bullion		Dore		Total	
	Silver content (kilograms)	Value (thousands)						
2004	1,560	\$306	302,000	\$64,500	79,800	\$18,800	384,000	\$83,600
2005:								
Armenia	369	75	--	--	30	7	399	82
Australia	--	--	17,100	4,230	--	--	17,100	4,230
Brazil	2,030	491	--	--	--	--	2,030	491
Canada	--	--	116,000	34,200	93	28	116,000	34,200
China	--	--	32	8	--	--	32	8
Denmark	--	--	275	50	--	--	275	50
Finland	17	3	553	128	2,340	344	2,910	475
Germany	--	--	782	140	--	--	782	140
Guatemala	--	--	316	81	--	--	316	81
Hong Kong	--	--	98	18	--	--	98	18
Ireland	212	42	29	4	--	--	241	46
Italy	17	3	--	--	--	--	17	3
Japan	17	3	--	--	--	--	17	3
Korea, Republic of	545	108	--	--	--	--	545	108
Mauritius	6	4	--	--	--	--	6	4
Mexico	--	--	2,960	563	46	10	3,000	573
Morocco	--	--	38	13	--	--	38	13
Netherlands	--	--	9,550	2,030	--	--	9,550	2,030
Norway	--	--	--	--	3,910	971	3,910	971
Russia	48	6	--	--	--	--	48	6
Singapore	--	--	--	--	2,960	618	2,960	618
Spain	7	4	--	--	106	25	113	29
Switzerland	--	--	--	--	88,000	21,400	88,000	21,400
Taiwan	83	15	--	--	--	--	83	15
Thailand	21	9	--	--	--	--	21	9
Trinidad and Tobago	163	43	--	--	--	--	163	43
United Kingdom	146	29	996	236	34,400	11,600	35,600	11,800
Uruguay	--	--	17,500	4,210	--	--	17,500	4,210
Total	3,680	834	166,000	45,900	132,000	35,000	302,000	81,700

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF SILVER, BY COUNTRY¹

Year and country	Other unwrought silver		Metal powder		Silver nitrate		Semimanufactured forms ²		Waste and scrap	
	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)
2004	39,600	\$8,690	708,000	\$122,000	61,500	\$5,720	269,000	\$48,300	2,240,000	\$424,000
2005:										
Aruba	109	24	--	--	--	--	--	--	--	--
Australia	--	--	--	--	342	24	422	83	--	--
Bahamas, The	247	54	--	--	--	--	--	--	--	--
Belgium	40	11	2,350	423	110	3	2,680	474	170,000	34,400
Bermuda	156	34	--	--	--	--	--	--	--	--
Brazil	17	4	--	--	733	82	2,190	372	145	50
Canada	12,500	3,350	21,000	3,590	35,000	1,690	134,000	23,300	774,000	119,000
Cayman Islands	111	41	--	--	--	--	--	--	--	--
China	175	39	6,330	1,080	8,540	1,300	1,890	354	611,000	74,900
Colombia	--	--	41	7	--	--	97	16	693	226
Czech Republic	--	--	120	20	--	--	--	--	102	22
Denmark	35	8	16	3	--	--	140	24	--	--
Dominican Republic	1,560	352	--	--	--	--	1,190	203	--	--
Egypt	--	--	--	--	--	--	103	17	--	--
Finland	--	--	309	52	--	--	16	3	--	--
France	85	18	26,300	4,480	--	--	7,940	1,430	--	--
Germany	150	38	89,600	15,200	53	23	7,280	1,260	398,000	115,000
Hong Kong	266	57	28,700	4,890	--	--	13,500	2,290	33,200	4,750
India	122	27	--	--	--	--	577	99	443	61
Ireland	--	--	142	24	--	--	--	--	--	--
Israel	--	--	--	--	151	28	1,210	216	754	153
Italy	239	58	321	59	--	--	2,160	382	529,000	118,000
Jamaica	481	120	--	--	--	--	--	--	--	--
Japan	796	257	205,000	35,200	--	--	2,890	499	15,900	37,200
Jordan	200	53	--	--	--	--	--	--	--	--
Kenya	--	--	--	--	--	--	276	47	--	--
Korea, Republic of	570	109	232,000	40,100	265	24	358	65	33,400	4,510
Kuwait	--	--	--	--	120	6	--	--	--	--
Lithuania	--	--	--	--	--	--	316	54	--	--
Lebanon	--	--	144	26	--	--	--	--	--	--
Malaysia	--	--	--	--	--	--	--	--	6,520	852
Mauritius	--	--	--	--	--	--	1,710	298	--	--
Mexico	501	110	11,500	1,970	5,020	454	48,200	8,890	73	21
Netherlands	--	--	2,690	473	447	13	8,300	1,430	37	8
Netherlands Antilles	678	158	--	--	--	--	245	42	1	3
New Zealand	--	--	156	28	107	6	--	--	--	--
Nigeria	--	--	--	--	127	5	--	--	--	--

See footnotes at end of table.

TABLE 5—Continued
U.S. EXPORTS OF SILVER, BY COUNTRY¹

Year and country	Other unwrought silver		Metal powder		Silver nitrate		Semimanufactured forms ²		Waste and scrap	
	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)
2005—Continued:										
Philippines	1	3	--	--	211	16	991	169	188	66
Portugal	--	--	--	--	195	\$12	--	--	--	--
Saudi Arabia	--	--	--	--	--	--	--	--	175,000	\$34,700
Singapore	--	--	16,500	\$2,830	--	--	4,620	\$808	168	22
Slovenia	--	--	--	--	--	--	--	--	477	62
South Africa	--	--	26	5	27	4	--	--	3,410	539
Spain	--	--	--	--	--	--	23,300	3,970	1,190	154
Sri Lanka	--	--	--	--	115	17	--	--	--	--
Sweden	--	--	12,600	2,140	93	6	--	--	55,100	11,800
Switzerland	13	\$3	419	76	--	--	1,210	223	705	5,900
Taiwan	133	30	79,900	13,600	--	--	6,880	1,230	39,500	3,560
Thailand	87	26	151	26	--	--	21,900	4,220	3,740	659
Trinidad and Tobago	--	--	--	--	2	3	164	40	--	--
United Arab Emirates	--	--	--	--	124	24	46	8	1	7
United Kingdom	444	113	72,000	12,400	4,840	448	10,200	1,790	24,700	8,900
Vietnam	411	79	--	--	--	--	--	--	1,050	168
Other	407	106	80	14	--	--	722	132	93	98
Total	20,500	5,280	808,000	139,000	56,600	4,190	308,000	54,400	2,880,000	576,000

-- Zero.

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

²Containing 99.5% or more by weight of silver.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF SILVER, BY COUNTRY¹

Year and country	Silver ores and concentrates		Ash and residues		Bullion		Dore		Total	
	Silver content (kilograms)	Value (thousands)	Silver content (kilograms)	Value (thousands)	Silver content (kilograms)	Value (thousands)	Silver content (kilograms)	Value (thousands)	Silver content (kilograms)	Value (thousands)
2004	2,220	\$1,410	6,710	\$1,530	3,410,000	\$728,000	346,000	\$117,000	3,760,000	\$848,000
2005:										
Australia	--	--	--	--	25,400	4,680	--	--	25,400	4,680
Belgium	--	--	--	--	118	29	--	--	118	29
Canada	433	318	--	--	1,290,000	300,000	3,960	713	1,290,000	301,000
Chile	--	--	--	--	41,000	9,810	37,200	8,690	78,200	18,500
Colombia	--	--	--	--	403	97	2,090	536	2,500	633
France	--	--	--	--	1,600	348	--	--	1,600	348
Germany	--	--	--	--	20,300	4,590	--	--	20,300	4,590
Honduras	--	--	--	--	--	--	706	169	706	169
Mexico	--	--	--	--	1,910,000	447,000	138,000	47,700	2,050,000	494,000
Panama	--	--	--	--	167	61	41	8	208	69
Peru	--	--	--	--	514,000	119,000	118,000	31,600	632,000	151,000
Philippines	--	--	--	--	649	104	--	--	649	104
Poland	--	--	--	--	40,000	9,180	--	--	40,000	9,180
Spain	--	--	--	--	--	--	286	54	286	54
Taiwan	--	--	2,630	769	--	--	--	--	2,630	769
United Kingdom	--	--	--	--	34,700	7,210	--	--	34,700	7,210
Total	433	318	2,630	769	3,880,000	902,000	300,000	89,500	4,180,000	993,000

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF SILVER, BY COUNTRY¹

Year and country	Other unwrought silver		Metal powder		Silver nitrate		Semimanufactured forms ²		Waste and scrap	
	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)
2004	342,000	\$69,600	27,400	\$6,920	289	\$66	52,300	\$11,900	2,020,000	\$160,000
2005:										
Australia	--	--	43	7	--	--	1,470	156	117	705
Brazil	--	--	--	--	--	--	16,500	4,230	41,600	1,620
Canada	67,300	15,900	2,070	293	--	--	1,630	269	164,000	26,200
China	--	--	163	16	--	--	294	57	49,000	1,930
Colombia	--	--	--	--	--	--	--	--	24,500	653
Costa Rica	--	--	--	--	--	--	--	--	139,000	8,810
Dominican Republic	--	--	--	--	--	--	--	--	2,740	4,750
Finland	--	--	--	--	--	--	--	--	18,600	60
France	--	--	1,090	319	--	--	5,320	1,160	1,480,000	6,130
Germany	228	51	2,550	615	--	--	1,760	499	4,140	8,860
Guatemala	--	--	--	--	--	--	--	--	333	2,410
Honduras	--	--	--	--	--	--	--	--	44	470
Hong Kong	--	--	--	--	--	--	--	--	775	106
India	1,210	286	--	--	33	4	91	28	28,800	174
Indonesia	--	--	--	--	--	--	--	--	11,300	1,000
Ireland	--	--	--	--	--	--	--	--	15,200	685
Israel	--	--	--	--	--	--	--	--	29,200	119
Italy	135	65	--	--	--	--	--	--	51,800	14,000
Jamaica	--	--	--	--	--	--	--	--	3,630	24
Japan	707	248	20,900	5,220	--	--	--	--	10,900	2,030
Jordan	25	5	--	--	--	--	--	--	900	128
Korea, Republic of	--	--	--	--	--	--	--	--	9,560	792
Malaysia	--	--	450	78	--	--	831	105	66,500	1,230
Mexico	286,000	63,700	--	--	--	--	2,690	642	1,370,000	33,800
Netherlands	1,080	109	454	94	--	--	--	--	10	3
Panama	--	--	--	--	--	--	--	--	106	721
Peru	--	--	--	--	--	--	149,000	32,500	3	50
Philippines	63	37	66	11	--	--	--	--	391	321
Singapore	--	--	(3)	6	--	--	--	--	64	935
South Africa	--	--	--	--	--	--	--	--	20,100	203
Spain	--	--	--	--	--	--	278	72	--	--
Switzerland	56	13	301	83	--	--	150	39	--	--
Taiwan	--	--	13	2	84	13	--	--	31,600	2,530
Turkey	56	10	--	--	--	--	--	--	544	8
United Arab Emirates	--	--	--	--	--	--	--	--	5,500	220

See footnotes at end of table.

TABLE 7—Continued
U.S. IMPORTS FOR CONSUMPTION OF SILVER, BY COUNTRY¹

Year and country	Other unwrought silver		Metal powder		Silver nitrate		Semimanufactured forms ²		Waste and scrap	
	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)	Gross weight (kilograms)	Value (thousands)
2005—Continued:										
United Kingdom	1	\$5	1,180	\$243	552	\$101	17	\$31	593,000	\$15,500
Venezuela	--	--	--	--	--	--	--	--	110	555
Other	75	21	--	--	--	--	--	--	376	1,410
Total	357,000	80,400	28,400	6,840	201	30	180,000	39,900	3,640,000	126,000

-- Zero.

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

²Containing 99.5% or more by weight of silver.

TABLE 8
SILVER: WORLD MINE PRODUCTION, BY COUNTRY^{1,2}

(Metric tons)

Country	2001	2002	2003	2004	2005 ^c
Algeria ^c	2 ³	1	1	(4) ^r	1
Argentina	153	126	134	172	175
Armenia	NA	6	4	4 ^e	4
Australia	1,970 ^r	2,077	1,868 ^r	2,183 ^r	2,047 ³
Bolivia	411	450 ^r	465 ^r	407 ^r	419 ³
Brazil ⁵	46 ^r	33	31	35 ^r	36 ^p
Bulgaria ^c	57	60	50	50	50
Burma	2	1 ^r	1 ^r	1 ^r	1
Canada	1,320	1,408	1,310	1,337 ^r	1,122 ³
Chile	1,349	1,210	1,313	1,360	1,400 ³
China ^c	1,910	2,200	2,400	2,450	2,500
Colombia	7	7	10	9 ^r	7 ³
Congo (Kinshasa)	--	2	36	33	54 ³
Costa Rica ^c	(4)	(4)	(4)	(4)	(4)
Ecuador ^c	2	(4)	(4)	(4) ^{r,3}	(4) ³
Ethiopia	4	1	1	1 ^r	1
Finland	24	29	31 ^r	37 ^r	49 ³
France ^c	1	1	1	1	(5)
Ghana	2	2	3 ^r	3 ^r	3
Greece	62	75	79	79	79
Honduras	47	53	48	48 ^e	48
India	50	52	51	15 ^r	32 ³
Indonesia	270	294	285	263	280
Iran ^c	22	23	23	25 ^r	25
Ireland	19	5 ^e	9 ^r	7 ^r	6
Italy ^{r,6}	4 ³	4	4	3	3
Jamaica	(4)	(4) ^e	(4)	(4) ^e	--
Japan	80	81	79	79	54 ³
Kazakhstan	982	893	827	733	832
Korea, North ^c	20	20	20	20	20
Korea, Republic of	1	7	12	5	4 ³
Macedonia ^c	15	12	10	10	10
Malaysia	(4)	--	--	-- ^r	--
Mali ^c	-- ^r	-- ^r	-- ^r	-- ^r	--
Mexico	2,760	2,747	2,569	2,569 ^r	2,894 ³
Mongolia ^c	27	27	27	28	28
Morocco	281	277	201	196 ^r	196
Namibia	20	44	45 ^e	27 ^r	20
New Zealand ^c	23	29 ^r	30 ^r	30 ^r	30
Nicaragua	3	2	2	2 ^e	2
Oman	3	4	-- ^e	-- ^e	--
Papua New Guinea ^c	76 ^r	64 ^r	62 ^r	38 ^r	63
Peru	2,571	2,870	2,921	3,060 ^r	3,193 ³
Philippines ^c	31 ^r	9	10 ^r	9 ^r	2 ³
Poland	1,194	1,229	1,237	1,344 ^r	1,300
Portugal	23 ^e	20	21	25 ^r	24
Romania ^c	18	15	18	20	20
Russia ^c	380	400	700	1,277 ³	1,350 ³
Saudi Arabia ^c	15 ³	14	13	6	6
Serbia and Montenegro	6	7	10 ^r	10 ^r	10
South Africa	110	113	80	72 ^r	89
Spain	60 ^e	3	2	2 ^e	7
Sudan	2	3	3	3 ^{r,e}	3

See footnotes at end of table.

TABLE 8—Continued
SILVER: WORLD MINE PRODUCTION, BY COUNTRY^{1,2}

(Metric tons)

Country	2001	2002	2003	2004	2005 ^c
Sweden	306	294 ^r	307	293	267 ³
Tajikistan	5	5	5	5 ^e	5
Tanzania	7	8	8	13 ^r	13
Tunisia ^c	4 ³	3	3	2	4
Turkey ^c	118	79 ^r	95 ^r	73 ^r	80
United States	1,740	1,350	1,240	1,250	1,230 ³
Uzbekistan ^c	80	80	80	80	83
Zimbabwe	3	2 ^r	1 ^r	3 ^r	3 ³
Total	18,700 ^r	18,800 ^r	18,800 ^r	19,800 ^r	20,200

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

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

²Recoverable content of ores and concentrates produced unless otherwise specified. Table includes data available through August 13, 2006.

³Reported figure.

⁴Less than ½ unit.

⁴Includes the following quantities, in kilograms, identified as secondary silver: 2002-05—50,000.

⁶Includes production from imported ores.