

# Mineral Industry Surveys

**For information, contact:**

Earle B. Amey, Gold Commodity Specialist  
Henry E. Hilliard, Silver and Platinum-Group Metals  
Commodity Specialist  
U.S. Geological Survey  
989 National Center  
Reston, VA 20192  
Telephone: (703) 648-4969 (Gold),  
(703) 648-4970 (Silver and PGM)  
Fax: (703) 648-7757  
E-mail: eamey@usgs.gov and hhiliari@usgs.gov

Mahbood Mahdavi (Data)  
Telephone: (703) 648-7778  
Fax: (703) 648-7975

Wanda G. Wooten (Data)  
Telephone: (703) 648-4980  
Fax: (703) 648-7975

**Internet:** <http://minerals.usgs.gov/minerals>

## PRECIOUS METALS IN DECEMBER 2002

U.S. mines produced 26,500 kilograms (kg) of gold and 114,000 kg of silver in December 2002. Compared with November 2002, production of gold was up 18% in Nevada, and production of silver was up 35% in Nevada.

### Gold

**Domestic.**—Canyon Resources Corp. reported that a Montana State court rejected its request to overturn an anti-cyanide mining initiative (I-137) and to recover damages for property taken from Canyon as a result of the initiative. Initiative 137 bans the use of cyanide in the processing of gold. The McDonald gold-silver deposit could produce 14,000 kg (450,000 troy ounces) of gold and 31,000 kg (1 million ounces) of silver per year. Canyon could appeal the decision to the Montana Supreme Court, but has yet to decide how to proceed (American Metal Market, 2002a).

**International.**—The World Bank defended the role of the International Finance Corp. (IFC), the bank's private sector financial arm, in the Minera Yanacocha SA gold mine in Peru, stating that the IFC took a stake in the project when other investors were unwilling. IFC holds a 5% stake in Yanacocha,

which is Latin America's largest gold mine. In addition, IFC holds a 20% stake in Peru's Quellaveco copper project, which is under development. A report on the World Bank's participation in extractive industries is scheduled to be published in 2003 (American Metal Market, 2002b).

Australia's gold industry is 70% owned by foreign mining companies, following Placer Dome Inc.'s takeover of AurionGold Ltd. Overseas control of the Australian gold industry had risen from 20% (5 years ago) to 30% by the end of 2000. In the wake of further takeovers, foreign ownership rose to 60% by early 2002. Latest gold production data show that North American companies control about 48%, with the split of 25% Canadian and 23% United States. South African-based companies account for 20%, while European groups have 2% (Platts Metals Week, 2002a).

Indian gold demand fell the last half of December owing to the high gold price. World gold prices rose in anticipation of a possible outbreak of war in Iraq. Demand that is extremely price sensitive is expected to drop to 400,000 kg (13 million troy ounces) in 2002 from 800,000 kg (26 million ounces in 2001 (Platts Metals Week, 2002c).

### Notice

The U.S. Geological Survey (USGS) will no longer print paper copies of the *Mineral Industry Surveys* for mailing list distribution after release of the December 2002 report. The report will continue to be available on the USGS Web site at URL: <http://minerals.usgs.gov/minerals>.

If you would like to receive e-mail notification for future issues of the *Mineral Industry Surveys*, instructions are provided at <http://minerals.usgs.gov/minerals/pubs/listservices.html>.

The Zimbabwean government put new mining regulations in place which minimize illegal gold mining and improve the availability of foreign currency. The new controls were necessary because of a recent drop in its gold production to about 15,000 kg (480,000 ounces) per year from 28,000 kg (900,000 ounces) per year, leading to a reduction in gold receipts. Zimbabwean gold producers could not explain this drastic shift. Since gold is one of Zimbabwe's largest foreign currency earners, better control of the accounting of gold will increase its supply of foreign currency, which is needed to purchase fuel and pay for electricity (Platts Metals Week, 2002d).

Harmony Gold Mining Company Ltd. and South Africa's state-owned mineral processing research organization, Mintek, signed a memorandum of understanding to create a new manufacturing and technology group which focuses on the beneficiation of precious metals. The new group, Musuku Beneficiation Systems, will provide gold producers with services to integrate value-added processing to their business, such as jewelry manufacturing and industrial applications for precious metals. The approach applies to South Africa and other countries where precious metals play a significant role in their national economies (Mining Journal, 2002).

### **Silver**

Hecla Mining Company, Coeur d'Alene, ID, reported that in 2002 the company produced more gold and silver than in any other year during the company's 112-year history, mining about 7,480 kg of gold and 271,000 kg of silver. Hecla's silver production came from the San Sebastian Mine in Mexico, which produced more than 106,000 kg; the Greens Creek Mine in Alaska, which produced more than 99,700 kg; and the Lucky Friday Mine in northern Idaho, which produced about 62,300 kg of silver. Hecla estimates that production in 2003 will be approximately 6,700 kg of gold and 280,000 kg of silver at an average total cash cost of \$150 per ounce for gold and \$2.15 per ounce for silver (Hecla Mining Company, 2003).

### **Platinum-Group Metals**

About 50,000 fuel-cell-powered automobiles per year could be produced in the United States by about 2012, with the vehicles becoming more widespread as technology improves in subsequent years, according to the International Platinum Association (IPA). An IPA delegation recently visited Washington, DC, to meet with Congressmen and Federal regulators to discuss the environmental benefits of platinum-group metals (PGM), including future PGM use in fuel cell technology. IPA estimates that each fuel-cell-powered vehicle would use slightly more platinum than the current average catalytic-converter-equipped passenger car, although they cautioned that the basic technology for fuel cells is not finalized. Passenger vehicles currently use catalytic converters that require an average of 6 to 7 grams of PGM per vehicle. IPA also reported that there should be no problem meeting increased demand for PGM, adding that the PGM industry was able to meet increased demand for PGM following the widespread use of catalytic converters that began in the 1970s (Platts Metals Week, 2002b).

During the 4th quarter of 2002, the Stillwater Mining Company, Columbus, MT, produced 3,520 kg of palladium and 1,060 kg of platinum for a total of 4,580 kg, compared with 4,170 kg of palladium and platinum during the same period in 2001. For the full year 2002, Stillwater reported that the company produced 19,200 kg of palladium and platinum. The company produced 15,700 kg of palladium and platinum in 2001, not including 690 kg recovered from construction and development activities at the East Boulder Mine. In 2002, total cash costs per ounce of PGM were \$287 per ounce, compared with \$264 in 2001. The \$23 increase was primarily the result of the inclusion of the higher East Boulder operating cost as the mine commenced commercial production and ramped up production during the year. In 2003, the company expects the Stillwater Mine to produce approximately 14,000 kg of palladium and platinum from mining ore at an average rate of about 2,040 metric tons per day (t/d) of ore; total cash costs are expected to be \$270 per ounce. Proven and probable reserves at the Stillwater Mine totaled 18 million metric tons (Mt) at a grade of 21.2 grams per metric ton (g/t) PGM, containing 42,400 kg of palladium and platinum at 3.4:1 palladium to platinum. In 2003, the East Boulder Mine is expected to operate at a rate of 1,130 t/d of ore, to mine and mill approximately 417,000 t, and to produce about 5,140 kg of palladium and platinum. Proven and probable reserves at East Boulder increased 2% in 2002 to 20 Mt of ore grading 16.5 g/t, and containing 364,000 kg of palladium and platinum at a ratio of 3.7:1 palladium to platinum (Stillwater Mining Company, 2003).

During December 2002, the Defense National Stockpile Center sold, under the Basic Ordering Agreement DLA-PGM-002, approximately 280 kg of palladium for an overall value of approximately \$2.3 million. The Englehard Corp., Islin, NJ; Johnson Matthey, Inc., Wayne, NJ; Mitsui & Co., New York, NY; and Standard Bank London, New York, NY were awarded material (Defense National Stockpile Center, 2003).

### **References Cited**

- American Metal Market, 2002a, Breaking news: American Metal Market, v. 110, no. 98-4, December 12, p. 1.
- American Metal Market, 2002b, World Bank president defends IFC's stake in Yanacocha Mine: American Metal Market, v. 110, no. 97-4, December 5, p. 5.
- Defense National Stockpile Center, 2003, Stockpile announces PGM sales for December 2002: Fort Belvoir, VA, Defense National Stockpile Center news release, January 2, 1 p.
- Hecla Mining Company, 2003, Hecla reports record gold and silver production in 2002: Coeur d'Alene, ID, Hecla Mining Company press release, February 11, 12 p.
- Mining Journal, 2002, Adding value to gold: Mining Journal, v. 339, no. 8716, December 20/27, p. 435.
- Platts Metals Week, 2002a, Foreign ownership of Australian gold sector reaches 70%: Platts Metals Week, v. 73, no. 49, December 9, p. 13.
- Platts Metals Week, 2002b, Fuel-cell car output may be 50,000 by 2013: Platts Metals Week, v. 73, no. 45, November 11, p. 8.
- Platts Metals Week, 2002c, Indian gold demand slack on high price: Platts Metals Week, v. 73, no. 52, December 30, p. 11.
- Platts Metals Week, 2002d, Zimbabwe seeks to control gold mines: Platts Metals Week, v. 73, no. 51, December 23, p. 11.
- Stillwater Mining Company, 2003, 2002 unaudited year-end and fourth quarter results; 2003 outlook: Columbus, MT, Stillwater Mining Company press release, February 18, 17 p.

TABLE 1  
MINE PRODUCTION OF RECOVERABLE GOLD AND SILVER IN THE UNITED STATES, BY STATE 1/

(Kilograms)

Gold	Alaska	California	Nevada	Other States 2/	Total
2001:					
December	W	871	24,100	4,820	29,800
January-December	9,190	13,800	253,000	58,800	335,000
2002:					
January	W	954	16,400	4,270	21,600
February	W	797	16,600	3,990	21,400
March	W	1,000	18,600	4,430	24,000
April	W	893	20,800	4,150	25,900
May	W	788	18,600	3,680	23,000
June	W	907	20,100 r/	3,510	24,600 r/
July	W	770	19,200 r/	3,640	23,700 r/
August	W	740 r/	17,600	3,190	21,500 r/
September	W	701 r/	21,200 r/	3,840	25,800 r/
October	W	569 r/	20,000	3,780	24,400 r/
November	W	512 r/	19,200 r/	3,460 r/	23,200 r/
December	W	534	22,600	3,370	26,500
January-December	W	9,160	231,000	45,300	286,000
Silver	Arizona	Idaho	Nevada	Other States 3/	Total
2001:					
December	W	W	54,400	89,100	144,000
January-December	W	40,600	555,000	1,010,000	1,600,000
2002:					
January	W	W	38,900	85,500	124,000
February	W	W	48,800	78,200	127,000
March	W	W	49,300	89,600	139,000
April	W	W	30,800	83,700	115,000
May	W	W	36,900	88,600	126,000
June	W	W	30,800 r/	84,700	115,000 r/
July	W	W	35,100 r/	78,300	113,000 r/
August	W	W	28,400	79,700 r/	108,000 r/
September	W	W	30,200 r/	78,700 r/	109,000 r/
October	W	W	38,100	86,100 r/	124,000 r/
November	W	W	24,200 r/	81,000 r/	105,000 r/
December	W	W	32,600	81,400	114,000
January-December	W	W	424,000	996,000	1,420,000

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other States."

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

2/ Includes Arizona, Colorado, Idaho, Montana, New Mexico, South Carolina, South Dakota, Utah, Washington, and State indicated by symbol W.

3/ Includes Alaska, California, Colorado, Missouri, Montana, New Mexico, New York, South Carolina, South Dakota, Tennessee, Utah, Washington, and States indicated by symbol W.

TABLE 2  
SELECTED PRECIOUS METAL PRICES

(Dollars per troy ounce)

	Gold	Silver	Platinum	Palladium
<b>Engelhard Industries:</b>				
2001:				
Low/date	257.04 April 2	4.05 November 26	419.00 November 7	319.00 November 13
High/date	294.40 September 17	4.87 January 30	645.00 January 10 and 15	1,100.00 January 26
Average	272.22	4.39	533.31	610.61
2002:				
October:				
Low/date	311.93/17	4.32/10	559.00/7	311.00/24
High/date	323.40/2	4.53/30 and 31	596.00/29	325.00/9 and 10
Average	317.74	4.42	583.00	319.09
November:				
Low/date	318.49/6	4.44/27	582.00/12	265.00/25
High/date	325.20/13	4.59/7,11,12,13, and 15	601.00/15 and 18	317.00/5
Average	320.34	4.54	590.26	290.32
December:				
Low/date	317.64/2	4.46/2	593.00/3 and 23	225.00/23
High/date	350.54/27	4.79/31	610.00/17	264.00/2 and 3
Average	334.59	4.66	598.75	
Year to date:				
Low/date	278.62 January 29	4.26 January 31	454.00 February 1	225.00 December 23
High/date	350.54 December 27	5.15 June 4 and July 15	610.00 December 17	439.00 January 3
Average	311.33	4.62	542.56	339.68
<b>Handy and Harman:</b>				
2001, Average	271.06	4.39	XX	XX
2002:				
October	316.56	4.40	XX	XX
November	319.14	4.54	XX	XX
December	333.21	4.66	XX	XX
Average year to date	310.13	4.62	XX	XX
<b>London Final: 1/</b>				
2001, Average	270.99	4.37	XX	XX
2002:				
October	316.56	4.40	XX	XX
November	319.07	4.51	XX	XX
December	331.92	4.63	XX	XX
Average year to date	309.97	4.60	XX	XX

XX Not applicable.

1/ Silver price reported as "London Spot/US Equiv."

Source: Platts Metals Week.

TABLE 3  
U.S. IMPORTS AND EXPORTS OF GOLD 1/

(Kilograms of gold content, unless otherwise specified)

Period and country	Ores and concentrates 2/	Doré and precipitates	Refined bullion 3/	Ash and residues	Total 4/	Waste and scrap (gross weight)	Metal powder (gross weight)	Gold compounds (gross weight)
Imports for consumption:								
2001	1,260	31,100	161,000	193	194,000	26,400	9,450	1,960
2002:								
September	303	4,760	11,600	--	16,700	1,310	432	993
October	729	5,410	15,200	--	21,400	1,200	380	946
November:								
Aruba	--	--	168	--	168	--	--	--
Brazil	--	--	1,400	--	1,400	--	--	--
Canada	240	--	10,500	--	10,700	163	44	--
Chile	--	--	400	--	400	--	--	--
Colombia	--	1,730	542	--	2,270	171	(5/)	--
Dominican Republic	--	--	4	--	4	526	35	--
Germany	--	--	1	--	1	--	(5/)	441 6/
Honduras	--	339	--	--	339	--	289	--
Japan	--	--	--	--	--	--	--	698 6/
Mexico	276	92	594	--	963	111	--	--
Panama	--	110	9	--	120	28	--	--
Peru	--	2,030	--	--	2,030	--	--	--
Other	2	93	120	--	215	106	9	--
Total	518	4,400	13,700	--	18,600	1,110	377	1,140
Year to date	2,640	33,600	163,000	--	199,000	11,000	10,400	15,600
Exports:								
2001	361	93,900	395,000	--	489,000	40,100	11,600	492,000
2002:								
September	11	5,060	18,300	--	23,300	10,100	155	41,400
October	28	5,930	10,100	--	16,100	16,600	101	45,900
November:								
Cambodia	--	--	--	--	--	--	--	1,080 6/
Canada	--	--	136	--	136	3,790	1	21,600 6/
Dominican Republic	36	3	1	--	40	--	--	1,720 6/
Germany	--	--	9	--	9	314	23	175 6/
Hong Kong	--	--	9	--	9	--	--	584 6/
Israel	--	--	--	--	--	--	--	8,580 6/
Mexico	--	--	698	--	698	--	1	--
Peru	--	--	455	--	455	--	51	--
Switzerland	--	5,320	14,100	--	19,500	--	419	--
Taiwan	--	--	--	--	--	--	3	--
United Arab Emirates	7	--	--	--	7	--	--	--
United Kingdom	--	4	8,360	--	8,370	4,540	14	3,930 6/
Other	--	19	234	--	253	10	13	--
Total	44	5,350	24,100	--	29,400	8,660	526	37,700
Year to date	459	60,300	167,000	--	227,000	76,400	10,800	387,000

-- Zero.

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

2/ Includes gold content of base metal ores, concentrates, and matte imported for refining.

3/ Bullion also moves in both directions between U.S. markets and foreign stocks on deposit in the Federal Reserve Bank. Monetary gold excluded.

4/ "Waste and scrap," "Metal powder," and "Gold compounds" not included in "Total."

5/ Less than 1/2 unit.

6/ All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF SILVER 1/

(Kilograms of silver content, unless otherwise specified)

Period and country	Bullion	Doré	Ores and concentrates 2/	Ash and residues	Total	Other unwrought silver (gross weight)	Metal powder (gross weight)	Silver nitrate (gross weight)	Semimanufactured form 3/ (gross weight)	Waste and scrap (gross weight)
2001	2,940,000	151,000	7,550	38,000	3,130,000	249,000	24,200	26,000	153,000	1,110,000
2002:										
September	364,000	1,130	--	3,980	369,000	34,800	1,470	--	38,600	207,000
October	313,000	4,090	375	4,940	323,000	34,600	1,290	40	26,700	85,900
November:										
Australia	--	--	--	630	630	--	--	--	--	99
Belgium	1,770	--	--	--	1,770	--	--	--	--	--
Brazil	--	--	--	--	--	--	--	--	--	38
Canada	113,000	--	512 4/	2,410 4/	116,000	552	--	--	17,800 4/	5,800
Chile	6,000	--	--	--	6,000	--	--	--	138 4/	--
Colombia	--	412	--	--	412	--	--	--	--	1
Costa Rica	--	--	--	--	--	--	--	--	--	222
Dominican Republic	--	--	--	--	--	--	--	--	--	1,000
France	--	--	--	--	--	247	422	--	--	--
Germany	70	--	--	--	70	--	320	--	3,630 4/	502
India	--	--	--	--	--	96 4/	--	--	1,060	--
Italy	--	100	--	--	100	122 4/	--	--	426 4/	11
Japan	--	--	--	--	--	--	301 4/	--	868 4/	24
Korea, Republic of	--	--	--	--	--	--	--	--	1,530	--
Mexico	129,000	7,030 4/	44,200	18	180,000	22,600	--	--	127	1,630
Panama	68	--	--	--	68	--	--	--	--	54
Peru	21,800	--	--	--	21,800	30	--	--	--	--
Poland	18,000	--	--	--	18,000	--	--	--	1,820	--
Switzerland	--	--	--	--	--	--	150	--	--	--
Taiwan	--	--	--	--	--	--	--	--	128	--
United Kingdom	--	--	--	992 4/	992	--	--	--	--	384
Other	--	--	--	--	--	--	--	--	(5) 4/	51
Total	289,000	7,540	44,700	4,050	345,000	23,600	1,190	--	27,500	9,810
Year to date	3,650,000	15,900	48,400	58,400	3,770,000	245,000	10,100	572	266,000	723,000

-- Zero.

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

2/ Includes silver content of base metal ores and concentrates.

3/ Containing 99.5% or more by weight of silver.

4 All or part of these data have been referred to the U.S. Census Bureau for verification.

5/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 5  
U.S. EXPORTS OF SILVER 1/

(Kilograms of silver content, unless otherwise specified)

Period and country	Bullion	Doré	Ores and concentrates 2/	Total	Other unwrought silver (gross weight)	Metal powder (gross weight)	Silver nitrate (gross weight)	Semimanufactured form 3/ (gross weight)	Waste and scrap (gross weight)
2001	707,000	18,200	239,000	963,000	48,800	187,000	143,000	203,000	1,810,000
2002:									
September	27,100	1,460	39,700	68,200	3,180	56,900	5,870	21,600	161,000
October	15,100	1,300	19,900	36,300	2,190	30,300	4,720	17,300	132,000
November:									
Armenia	93	--	--	93	--	--	--	--	--
Belgium	--	--	--	--	--	64	--	--	7,720
Brazil	--	--	--	--	--	--	--	266	--
Canada	662	--	--	662	80	1,040	4,820 4/	2,520	71,600
China	--	--	--	--	--	--	--	125	21,200
Czech Republic	--	--	--	--	--	--	--	141	--
Dominican Republic	--	--	--	--	90 4/	--	--	--	--
France	--	--	--	--	--	1,710	--	470	--
Germany	--	--	--	--	21	968	--	937 4/	13,100
Hong Kong	--	--	4	4	16 4/	336	--	516 4/	11
India	--	--	--	--	24 4/	--	--	48	3,310
Ireland	--	--	--	--	--	--	--	61	--
Italy	--	--	--	--	--	24,600 4/	--	--	45,700
Japan	--	--	--	--	--	1,540	--	4,930	40,900
Korea, Republic of	--	--	--	--	21	2,430	106 4/	8,050	--
Lebanon	--	--	--	--	8 4/	114	--	--	--
Mexico	6,230	--	19,600 4/	25,800	--	420	179	803	--
Netherlands	55	--	--	55	--	257	--	111	--
New Zealand	--	--	--	--	--	27	--	56	--
Philippines	--	--	--	--	--	--	--	539	--
Poland	--	--	--	--	--	--	--	151	--
Saudi Arabia	--	--	--	--	--	--	--	--	7,500
Singapore	--	--	--	--	--	56	--	609 4/	--
Spain	--	--	--	--	--	30 4/	--	1,150	--
Sweden	--	--	--	--	--	1,750	--	--	17,900
Switzerland	--	1,500	--	1,500	--	--	--	--	--
Taiwan	--	--	--	--	--	9,900	99	39	--
Thailand	--	--	--	--	--	--	--	2,270	--
United Kingdom	19,300	--	--	19,300	4 4/	5,950	--	606 4/	10,300
Other	--	--	--	--	100 4/	--	50	71	74
Total	26,300	1,500	19,600	47,500	386	51,200	5,250	24,500	239,000
Year to date	624,000	18,800	211,000	853,000	31,200	312,000	78,800	264,000	2,140,000

-- Zero.

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

2/ Includes silver content of base metal ores and concentrates.

3/ Semimanufactured (including silver plated with gold or platinum) forms of silver.

4/ All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF PLATINUM-GROUP METALS 1/

(Kilograms of metal content)

Period and country	Platinum grain and nuggets	Platinum sponge	Other unwrought platinum	Platinum, other	Platinum waste and scrap	Platinum coins	Unwrought palladium	Palladium, other	Iridium 2/	Unwrought osmium	Unwrought ruthenium	Rhodium 3/
2001	2,480	68,700	3,660	5,330	3,960	53	146,000	13,600	3,110	77	8,170	12,400
2002:												
September	180	6,440	283	774	1,050	--	3,810	2,840	160	--	560	549
October	223	8,380	328	336	1,870	--	10,800	6,780	139	33	675	1,110
November:												
Argentina	--	--	15	--	--	--	--	--	--	--	--	--
Belgium	--	361	--	--	--	--	598	--	--	--	--	51
Brazil	--	--	--	--	3	--	--	--	--	--	--	--
Canada	1	--	--	31	99	--	200	--	--	--	--	--
Chile	--	--	--	--	7	--	--	--	--	--	--	--
Colombia	--	--	43	--	--	--	--	--	--	--	--	--
Ecuador	--	--	--	(4/)	--	--	--	--	--	--	--	--
France	--	--	--	6 5/	--	--	--	7 5/	--	--	--	--
Germany	--	146	51	231	157	(4/) 5/	141	262	5	--	31	24
Greece	--	--	--	--	9	--	--	--	--	--	--	--
Hong Kong	--	--	--	--	4	--	--	--	--	--	--	--
Israel	--	--	59	--	--	--	--	--	--	--	--	--
Italy	--	11	62	--	--	--	2	105	--	--	--	32
Japan	--	--	181	--	--	--	160	22 5/	--	--	--	25
Korea, Republic of	--	--	--	4	109	--	--	--	--	--	--	--
Mexico	--	--	--	--	7	--	--	--	--	--	--	--
Norway	--	39	--	--	--	--	126	--	--	--	--	2
Russia	--	247	9	--	--	--	5,530	1,120	--	--	--	93
South Africa	124	2,260	--	13	--	--	4,310	103	11	--	313	304
Spain	--	--	--	--	--	--	3	--	--	--	--	--
Sweden	--	--	--	--	--	--	153	--	--	--	--	--
Switzerland	38	37	7	16	--	--	66 5/	65	--	--	--	--
United Kingdom	--	805	(4/)	75	67	--	2,720	156	10 5/	--	8	70
Total	163	3,910	428	376	463	(4/)	14,000	1,840	25	--	352	600
Year to date	1,680	67,300	3,020	4,700	76,100	15	86,800	18,100	1,980	36	9,130	7,550

-- Zero.

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

2/ Unwrought and other forms of iridium.

3/ Unwrought and other forms of rhodium.

4/ Less than 1/2 unit.

5/ All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.



TABLE 7  
U.S. EXPORTS OF PLATINUM-GROUP METALS 1/

(Kilograms of metal content, unless otherwise specified)

Period and country	Palladium 2/	Platinum 2/	Platinum waste and scrap	Iridium, osmium and ruthenium 2/ 3/	Rhodium 2/
2001	37,000	29,300	12,900	1,370	982
2002:					
September	1,720	3,620	3,170	155	55
October	2,260	2,120	2,850	338	1
November:					
Argentina	--	2	--	--	(4/ 5/
Australia	20	2	--	--	--
Belgium	(4/)	1	--	--	--
Canada	82	229	180	--	(4/ 5/
China	43 5/	31	--	--	--
Costa Rica	3 5/	--	--	--	--
Denmark	18 5/	--	--	--	--
Dominican Republic	1	--	--	--	--
Finland	2	(4/)	--	--	--
France	25	10	--	--	--
Germany	331 5/	186 5/	21	--	(4/ 5/
Hong Kong	4	18 5/	--	--	(4/ 5/
Iceland	(4/ 5/	--	--	--	--
India	(4/ 5/	--	--	--	(4/ 5/
Ireland	2	9	--	88	--
Israel	10	11	--	--	--
Italy	6	(4/)	--	--	--
Japan	210 5/	615 5/	56	--	21 5/
Korea, Republic of	17 5/	1	--	--	--
Liechtenstein	--	5	--	--	--
Malaysia	--	3 5/	--	--	--
Mexico	4 5/	6 5/	--	1 5/	(4/ 5/
Netherlands	87	11 5/	--	1	--
New Zealand	8	5	--	--	--
Norway	--	3	--	--	--
Philippines	--	1	--	--	--
Romania	--	--	--	1	--
Singapore	1 5/	2 5/	--	--	3 5/
Slovakia	10	--	--	--	--
Slovenia	1	--	--	--	--
South Africa	--	1	--	--	--
Spain	12	2	--	--	--
Sweden	2 5/	1	--	--	--
Switzerland	121	6	--	--	--
Taiwan	119 5/	8	--	--	--
Thailand	7 5/	3	--	--	(4/ 5/
Trinidad and Tobago	2 5/	--	--	--	--
United Arab Emirates	1	--	--	--	--
United Kingdom	402	377 5/	1,270	22 5/	29 5/
Total	1,550	1,550	1,530	112	53
Year to date	39,300	26,100	15,700	1,840	344

-- Zero.

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

2/ Unwrought and other forms.

3/ Gross weight.

4/ Less than 1/2 unit.

5/ All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.