

Mineral Industry Surveys

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PLATINUM-GROUP METALS IN DECEMBER 2023

Estimated palladium production was 10,000 kilograms (kg) in 2023, essentially unchanged compared with production in 2022. Estimated platinum mine production was 3,000 kg in 2023, essentially unchanged compared with production in 2022 (table 1).

Imports for consumption of platinum-group metals (PGMs), including waste and scrap, were 14,200 kg in December 2023, a decrease of 30% compared with imports in November 2023, and a decrease of 21% compared with imports in December 2022 (table 1). The leading import sources for PGMs into the United States in December 2023 were, in descending order of quantity, South Africa, Canada, and Germany (tables 3, 4).

In December 2023, exports of PGM scrap increased by 83% and platinum by 52% compared with exports in November 2023. Exports of rhodium decreased by 38% and palladium by 29% compared with those in November 2023. The leading destinations for PGM exports were, in descending order of quantity, Germany, Switzerland, and the United Kingdom (tables 1, 5).

The Engelhard average December 2023 price of platinum increased by 4% compared with the average price in November 2023, and the average prices of palladium and rhodium each increased slightly. The average prices of iridium and ruthenium were each unchanged compared with those in November 2023. Compared with average prices in December 2022, the December 2023 average prices for iridium increased by 12%, but decreased by 64% for rhodium, by 41% for palladium, by 10% for ruthenium, and by 7% for platinum (fig. 1; tables 1, 2).

Industry News

Platinum Group Metals Ltd. (South Africa) announced it entered into a cooperation agreement with Ajlan & Bros Mining and Metals Co. (Saudi Arabia) to determine if it could construct a stand-alone PGM smelter and base metal refinery in Saudi Arabia. The first phase of the agreement would involve a global PGM market study, followed by a definitive feasibility study and, if proven viable, an option to form a 50:50 joint venture (Platinum Group Metals Ltd., 2024).

Impala Platinum Holdings Ltd. (Implats) (South Africa) provided an update following an incident at its Rustenburg 11

Shaft on November 27. The Department of Minerals and Energy completed its inspection report and instructed Implats to hire an independent consultant to determine the cause of the accident. The damaged equipment and the shaft 11 complex would remain decommissioned during the continued investigations (Impala Platinum Holdings Ltd., 2023).

Waterburg JV Resources (Pty) Ltd., a joint venture between Platinum Group Metals Ltd., Implats, and others, received approval and funding for continued development (Stage Three) of the Waterburg Project, a PGM project, in South Africa. The \$1.62 million budget was approved by the directors and shareholders of Waterburg JV Resources after Implats reported it could not financially provide the funding for its 15% share owing to internal cost savings efforts. The Stage Three budget would cover the period from September 2023 through approximately February 2024 (Platinum Group Metals Ltd., undated, 2024).

BASF Environmental Catalyst and Metal Solutions LLC, a standalone entity of BASF SE, signed a purchase agreement for the assets of Arc Metal AB. Arc Metal recycles PGMs from secondary sources – primarily spent automobile catalysts – in Sweden and will remain a company but without operations following the acquisition (BASF Environmental Catalyst and Metal Solutions LLC, 2023; Arc Metal, 2024).

References Cited

- Arc Metal SA, 2024, Arc Metal acquired by BASF: Hofors, Sweden, Arc Metals SA press release, February 2. (Accessed February 7, 2024, at <https://arcmetal.se/en/arc-metal-acquired-by-basf/>.)
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- Platinum Group Metals Ltd., undated, Waterburg Project: Vancouver, British Columbia, Canada, Platinum Group Metals Ltd. website. (Accessed February 6, 2024, at <https://www.platinumgroupmetals.net/waterburg/default.aspx>.)

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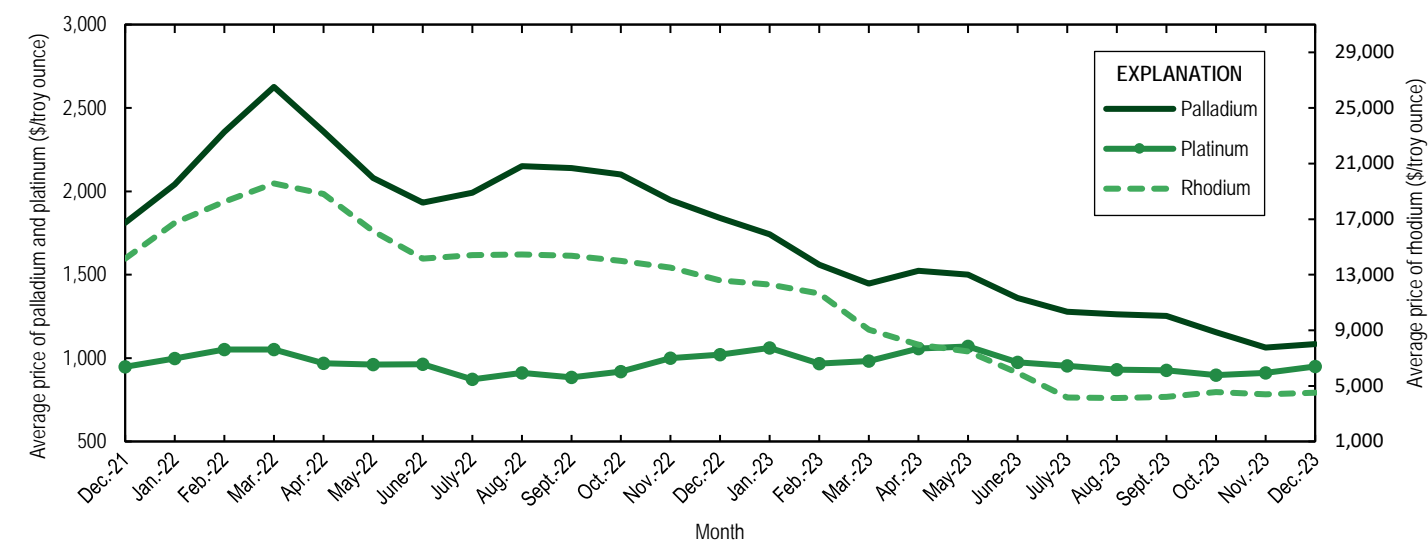


Figure 1. Engelhard unfabricated average monthly prices for palladium, platinum, and rhodium in dollars per troy ounce from December 2021 through December 2023. Source: S&P Global Platts Metals Week.

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TABLE 1
U.S. SALIENT PLATINUM-GROUP METALS STATISTICS¹

(Kilograms metal content, unless otherwise specified)

	2022	2023			
	January– December	October	November	December	January– December
Mine production: ²					
Palladium	10,100	843	843	843	9,980 ^e
Platinum	3,000	251	251	251	2,970 ^e
Total	13,100	1,090	1,090	1,090	13,000 ^e
Imports for consumption: ³					
Palladium	65,200	5,670	7,990	4,280	67,200
Platinum	64,200	4,040	5,140	5,970	67,100
Iridium	1,610	153	343	138	2,040
Osmium	1	--	--	--	--
Rhodium	13,200	1,050	1,720	809	12,100
Ruthenium	13,300	706	1,920	513	10,900
Waste and scrap ⁴	41,500	3,270	3,140	2,450	32,000
Total	199,000	14,900	20,300	14,200	191,000
Exports: ³					
Palladium	42,200	3,790	2,840	2,010	33,600
Platinum	23,100	1,430	600	915	11,700
Iridium, osmium, ruthenium	906	124	102	63	845
Rhodium	677	113	128	79	446
Waste and scrap ⁴	35,200	1,180	1,090	1,990	13,900
Total	102,000	6,640	4,760	5,060	60,500
Price, average (dollars per troy ounce): ⁵					
Palladium	2,133.81	1,155.45	1,063.15	1,084.95	1,351.66
Platinum	966.54	897.18	911.10	949.95	973.00
Iridium	4,581.93	4,825.00	4,990.00	5,000.00	4,672.78
Rhodium	15,585.00	4,556.82	4,401.25	4,500.00	6,660.58
Ruthenium	577.02	465.00	465.00	463.42	466.49

^eEstimated. -- Zero.

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

²Annual data are based on publicly available annual reports. Monthly and year-to-date data are estimated based on publicly reported quarterly data.

³Source: U.S. Census Bureau.

⁴Includes waste and scrap for all platinum-group elements. Previously included within platinum.

⁵Source: S&P Global Platts Metals Week.

TABLE 2
PLATINUM-GROUP METALS PRICES¹

(Dollars per troy ounce)

	Palladium	Platinum	Iridium	Rhodium	Ruthenium
2022:					
Low:					
Price	1,690.00	834.00	3,750.00	12,250.00	475.00
Date	Dec. 20	Jul. 14	Nov. ² –Dec. ²	Dec. ²	Dec. 21
High:					
Price	3,050.00	1,155.00	5,000.00	20,250.00	625.00
Date	Mar. 8	Mar. 8	Mar.–Jul. ²	Feb. ²	Mar.–Jul. ²
Price, average	2,133.81	966.54	4,581.93	15,585.00	577.02
2023:					
October:					
Low:					
Price	1,114.00	863.00	4,700.00	4,200.00	465.00
Date	Oct. 20	Oct. 6	Oct. ²	Oct. ²	Oct. ²
High:					
Price	1,225.00	945.00	4,950.00	5,350.00	465.00
Date	Oct. 2	Oct. 31	Oct. ²	Oct. 18 and 19	Oct. ²
Price, average	1,155.45	897.18	4,825.00	4,556.82	465.00
November:					
Low:					
Price	977.00	856.00	4,950.00	4,100.00	465.00
Date	Nov. 13	Nov. 13	Nov. ²	Nov. 3	Nov. ²
High:					
Price	1,140.00	943.00	5,000.00	4,650.00	465.00
Date	Nov. 1	Nov. 30	Nov. ²	Nov. 8	Nov. ²
Price, average	1,063.15	911.10	4,990.00	4,401.25	465.00
December:					
Low:					
Price	965.00	908.00	5,000.00	4,500.00	450.00
Date	Dec. 6	Dec. 6	Dec. ²	Dec. ²	Dec. 28 and 29
High:					
Price	1,260.00	1,020.00	5,000.00	4,500.00	465.00
Date	Dec. 22	Dec. 29	Dec. ²	Dec. ²	Dec. ²
Price, average	1,084.95	949.95	5,000.00	4,500.00	463.42
January–December:					
Low:					
Price	965.00	856.00	4,500.00	4,000.00	450.00
Date	Dec. 6	Nov. 13	Aug.–Sep. ²	Jul. ²	Dec. 28 and 29
High:					
Price	1,820.00	1,135.00	5,000.00	12,400.00	485.00
Date	Jan. 10	Apr. 21	Dec. ²	Jan. ²	Jan. ² and Feb. 2
Price, average	1,351.66	973.00	4,672.78	6,660.58	466.49

¹Quotes from Engelhard.

²Occurred multiple days in month(s) listed.

Source: S&P Global Platts Metals Week.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF PLATINUM METAL, BY COUNTRY OR LOCALITY¹

(Kilograms metal content, unless otherwise specified)

Country or locality	Platinum grain and nuggets		Platinum sponge		Other unwrought platinum		Platinum, other		Platinum coins	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
2022, January–December	1,320	\$42,000	47,800	\$1,500,000	2,350	\$146,000	12,100	\$529,000	642	\$21,000
2023:										
October	23	686	2,900	87,100	266	8,330	761	27,100	97	2,780
November	30	933	3,870	112,000	512	15,600	669	23,400	56	1,770
December:										
Argentina	--	--	--	--	22	1,010	--	--	--	--
Australia	--	--	--	--	--	--	(2)	9	--	--
Austria	--	--	--	--	--	--	(2)	3	(2)	13
Belgium	--	--	612	18,000	--	--	--	--	--	--
Canada	18	573	--	--	--	--	6	197	32	1,010
Colombia	--	--	--	--	22	648	10	287	--	--
Costa Rica	--	--	--	--	--	--	249	8,490	--	--
Czechia	--	--	--	--	--	--	1	15	--	--
France	--	--	8	228	--	--	2	89	--	--
Germany	--	--	285	8,940	16	578	165	5,900	(2)	9
Hong Kong	--	--	--	--	4	121	--	--	--	--
Italy	--	--	317	9,480	--	--	3	137	--	--
Japan	--	--	--	--	--	--	18	563	--	--
Korea, Republic of	--	--	218	6,480	--	--	--	--	--	--
Mexico	--	--	--	--	--	--	3	71	--	--
Singapore	--	--	--	--	(2)	8	(2)	24	--	--
South Africa	--	--	3,600	106,000	27	847	3	103	--	--
Switzerland	2	48	109	3,310	77	2,290	70	2,120	--	--
Taiwan	--	--	--	--	--	--	13	105	--	--
United Kingdom	--	--	--	--	--	--	56	1,720	2	242
Total	20	621	5,150	152,000	168	5,500	600	19,800	34	1,270
January–December	616	19,800	53,100	1,660,000	2,500	93,600	10,100	377,000	774	25,200

-- Zero.

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

²Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF PLATINUM-GROUP METALS, BY COUNTRY OR LOCALITY¹

(Kilograms metal content, unless otherwise specified)

Country or locality	Palladium ²		Iridium ²		Osmium ²		Rhodium ²		Ruthenium ²		Waste and scrap ³	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
2022, January–December	65,200	\$4,370,000	1,610	\$194,000	1	\$3	13,200	\$6,780,000	13,300	\$226,000	41,500	\$1,350,000
2023:												
October	5,670	219,000	153	21,800	--	--	1,050	146,000	706	9,900	3,270	60,400
November	7,990	281,000	343	52,800	--	--	1,720	236,000	1,920	25,700	3,140	83,900
December: ⁴												
Australia	--	--	--	--	--	--	--	--	--	--	10	375
Belgium	366	13,600	--	--	--	--	39	5,750	--	--	--	--
Canada	547	21,200	--	--	--	--	--	--	--	--	1,020	7,150
China	--	--	--	--	--	--	--	--	--	--	8	224
France	--	--	--	--	--	--	--	--	--	--	79	2,250
Germany	95	3,000	16	2,440	--	--	247	46,700	195	3,040	441	15,400
Haiti	--	--	--	--	--	--	--	--	--	--	7	219
Italy	192	6,080	2	286	--	--	31	4,610	--	--	149	4,760
Japan	55	2,100	13	1,980	--	--	3	497	30	358	--	--
Korea, Republic of	311	9,980	--	--	--	--	31	4,030	--	--	22	676
Malaysia	--	--	--	--	--	--	--	--	--	--	24	565
Mexico	22	504	--	--	--	--	--	--	--	--	188	6,540
New Zealand	--	--	--	--	--	--	--	--	--	--	122	3,360
Paraguay	--	--	--	--	--	--	--	--	--	--	7	229
Poland	--	--	--	--	--	--	--	--	--	--	19	167
Singapore	--	--	--	--	--	--	--	--	--	--	16	532
South Africa	2,540	85,400	39	6,010	--	--	457	67,000	288	3,580	58	2,560
Sweden	--	--	--	--	--	--	--	--	--	--	80	8,220
Switzerland	138	4,890	--	--	--	--	--	--	--	--	--	--
United Kingdom	6	210	69	9,290	--	--	(5)	207	--	--	179	5,820
Other	(5)	4	--	--	--	--	--	--	--	--	23	741
Total	4,280	147,000	138	20,000	--	--	809	129,000	513	6,980	2,450	59,800
January–December	67,200	2,980,000	2,040	263,000	--	--	12,100	3,030,000	10,900	150,000	32,000	937,000

-- Zero.

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

²Unwrought and other forms.

³Includes waste and scrap for all platinum-group elements.

⁴The 20 countries and (or) localities with the greatest total platinum-group metal imports are listed. All others are included in the "Other" category.

⁵Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF PLATINUM-GROUP METALS, BY COUNTRY OR LOCALITY¹

(Kilograms metal content, unless otherwise specified)

Country or locality	Palladium ²		Platinum ²		Iridium, osmium and ruthenium ^{2,3}		Rhodium ²		Waste and scrap ⁴	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
2022, January–December	42,200	\$2,770,000	23,100	\$885,000	906	\$36,500	677	\$355,000	35,200	\$2,990,000
2023:										
October	3,790	144,000	1,430	48,100	124	17,700	113	16,000	1,180	92,900
November	2,840	103,000	600	41,800	102	12,700	128	20,000	1,090	63,900
December: ⁵										
Australia	2	84	19	749	4	435	--	--	--	--
Belgium	19	893	31	946	(6)	4	9	1,260	327	9,820
Brazil	90	3,440	(6)	84	--	--	--	--	--	--
Canada	524	20,200	18	714	--	--	(6)	10	77	2,620
China	7	253	20	768	(6)	45	3	434	--	--
Costa Rica	--	--	44	2,880	--	--	--	--	--	--
France	4	170	3	107	(6)	37	--	--	--	--
Germany	125	4,570	502	15,400	1	134	(6)	7	224	27,900
Hong Kong	11	402	7	230	11	1,600	66	10,100	89	3,620
Ireland	--	--	38	1,440	--	--	--	--	--	--
Italy	80	3,000	133	4,160	(6)	5	--	--	200	6,010
Japan	86	3,340	1	57	37	5,510	--	--	385	11,500
Mexico	9	386	29	963	2	245	--	--	--	--
Philippines	--	--	6	192	--	--	--	--	--	--
Sweden	--	--	--	--	--	--	--	--	52	1,550
Switzerland	813	36,300	(6)	10	--	--	--	--	--	--
Taiwan	199	7,300	1	14	1	153	--	--	--	--
Thailand	5	145	3	99	--	--	--	--	--	--
United Arab Emirates	--	--	--	--	--	--	--	--	13	400
United Kingdom	21	938	53	1,570	6	541	--	--	623	18,800
Other	13	546	7	309	(6)	32	--	--	4	151
Total	2,010	82,000	915	30,700	63	8,740	79	11,800	1,990	82,400
January–December	33,600	1,360,000	11,700	574,000	845	110,000	446	95,600	13,900	971,000

-- Zero.

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

²Unwrought and other forms.

³Gross weight.

⁴Includes waste and scrap for all platinum-group elements. Previously categorized as "Platinum waste and scrap."

⁵The 20 countries and (or) localities with the greatest total platinum-group metal exports are listed. All others are included in the "Other" category.

⁶Less than ½ unit.

Source: U.S. Census Bureau.