

Mineral Industry Surveys

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PLATINUM-GROUP METALS IN NOVEMBER 2023

Imports for consumption of platinum-group metals (PGMs), including waste and scrap, were 20,300 kilograms (kg) in November 2023, an increase of 36% compared with imports in October 2023, and an increase of 13% compared with imports in November 2022 (table 1). The leading import sources for PGMs into the United States in November 2023 were, in descending order of quantity, South Africa, Germany, and Russia (tables 3, 4).

In November 2023, exports of rhodium increased by 13% compared with exports in October 2023. Exports of platinum decreased by 58%, palladium by 25%, and PGM scrap by 8% compared with those in October 2023. The leading destinations for PGM exports were, in descending order of quantity, Germany, Italy, and Canada (tables 1, 5).

The Engelhard average November 2023 price of ruthenium was unchanged compared with the average price in October 2023. The average prices of iridium increased by 3% and platinum increased slightly, but the prices of palladium decreased by 8% and by 3% for rhodium compared with those in October 2023. Compared with average prices in November

2022, the November 2023 average prices for iridium increased by 31%, but decreased by 67% for rhodium, by 45% for palladium, by 11% for ruthenium, and by 9% for platinum (fig. 1; tables 1, 2).

Industry News

Sibanye-Stillwater Ltd. (South Africa) announced it was restructuring its U.S. PGM operations in Montana to reduce capital and operating costs owing to a combination of inflation and lower palladium prices. The restructuring would affect 100 employees and 187 contract workers but not impact mine or recycling production. Most of the employees were working at the Stillwater Mine, although some layoffs occurred at the East Boulder Mine, Columbus Metallurgical Complex, Columbus offices, and remote locations. According to the company, the restructuring would enable Sibanye-Stillwater to remain operational in the present economic conditions (Sibanye-Stillwater Ltd., 2023b).

Sibanye-Stillwater also announced it entered into a purchase

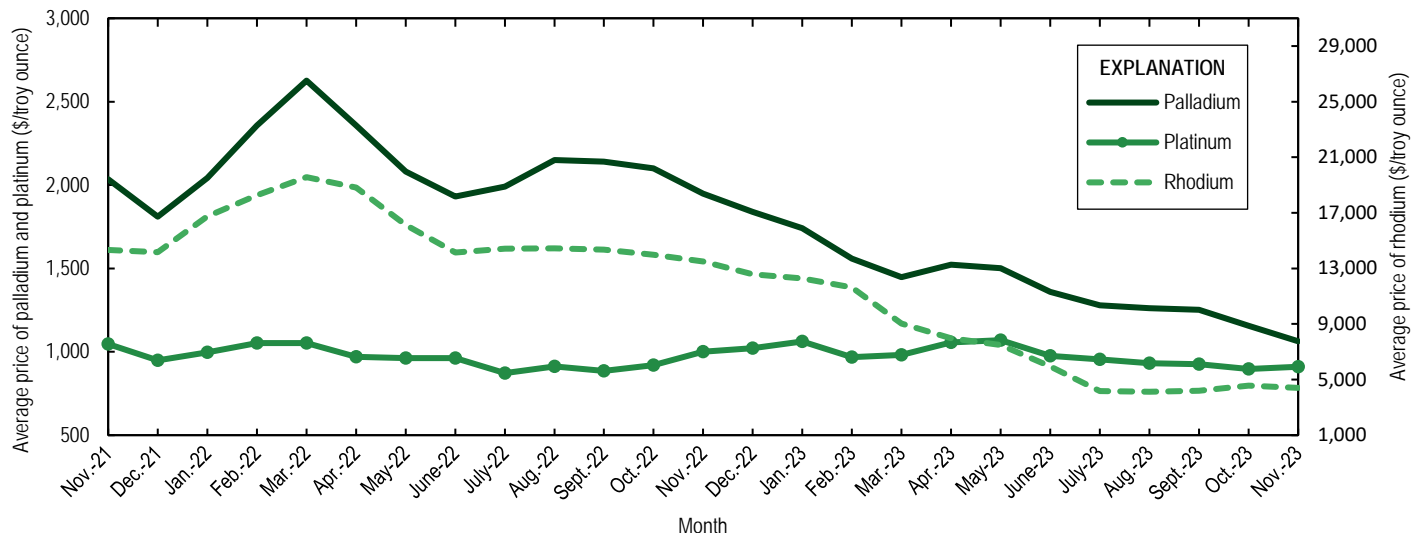


Figure 1. Engelhard unfabricated average monthly prices for palladium, platinum, and rhodium in dollars per troy ounce from November 2021 through November 2023. Source: S&P Global Platts Metals Week.

agreement with the Reldan Group of Companies, a precious metal recycling group based in Pennsylvania, in early November. The acquisition was expected to conclude in the first quarter of 2024 (Sibanye-Stillwater Ltd., 2023c).

Rustenburg Platinum Mines Ltd., a subsidiary of Anglo American Platinum Ltd., announced the sale of its 50% interest in the Kroondal and Marikana pool-and-share agreements, to Sibanye Rustenburg Platinum Mines Ltd., a subsidiary of Sibanye-Stillwater Ltd. The sale resulted in full ownership of the Kroondal operation by Sibanye-Stillwater (Anglo American Platinum Ltd., 2023; Sibanye-Stillwater Ltd., 2023a).

Heraeus Precious Metals GmbH & Co. KG and Sibanye-Stillwater developed a ruthenium-based catalyst for use in proton exchange membrane (PEM) water electrolysis, which can be used in the production of hydrogen fuel cells and decrease the amount of iridium needed in a PEM electrolyzer stack (Heraeus Precious Metals GmbH & Co. KG, 2023).

References Cited

Anglo American Platinum Ltd., 2023, Anglo American Platinum completes the disposal of its interest in the Kroondal Joint Venture: Johannesburg, South Africa, Anglo American Platinum Ltd. press release, November 1. (Accessed January 4, 2024, at <https://www.angloamericanplatinum.com/media/press-releases/2023/01-11-2023>.)

Heraeus Precious Metals GmbH & Co. KG., 2023, Heraeus and Sibanye-Stillwater introduce a ruthenium-based catalyst to reduce reliance on iridium for PEM water electrolysis: Hanau, Germany, Heraeus Precious Metals GmbH & Co. KG press release, November 14. (Accessed January 16, 2024, at https://www.heraeus.com/en/hpm/company/hpm_news/2023_hpm_news/ruthenium_based_catalyst_to_reduce_reliance_on_iridium_for_pem_water_electrolysis.html.)

Sibanye-Stillwater Ltd., 2023a, Sibanye-Stillwater assumes full ownership of Kroondal earlier than expected, doubling its life of mine: Johannesburg, South Africa, Sibanye-Stillwater Ltd. press release, November 1, 2 p. (Accessed January 4, 2024, at https://thevault.exchange/?get_group_doc=245/1698843217-ssw-Kroondal-PSA-early-close-01nov2023.pdf.)

Sibanye-Stillwater Ltd., 2023b, Sibanye-Stillwater begins repositioning its US PGM operations for lower cost structure to secure operational sustainability: Johannesburg, South Africa, Sibanye-Stillwater Ltd. press release, November 29, 2 p. (Accessed January 4, 2024, at https://thevault.exchange/?get_group_doc=245/1701247458-LogoSibanye-StillwaterrepositionsUSPGMoperations29Nov2023.pdf.)

Sibanye-Stillwater Ltd., 2023c, Sibanye-Stillwater to acquire Reldan, a US-based metals recycler, enhancing its exposure to the circular economy: Johannesburg, South Africa, Sibanye-Stillwater Ltd. press release, November 9, 2 p. (Accessed January 4, 2024, at https://thevault.exchange/?get_group_doc=245/1699525241-LogoSibanye-StillwatertoacquireReldanaUS-basedmetalsrecycler9Nov23.pdf.)

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

(Kilograms metal content, unless otherwise specified)

	2022	2023			
	January– December	September	October	November	January– November
Mine production: ²					
Palladium	10,100	843	843	843	9,140
Platinum	3,000	251	251	251	2,720
Total	13,100	1,090	1,090	1,090	11,900
Imports for consumption: ³					
Palladium	65,200	6,360	5,670	7,990	62,900
Platinum	64,200	5,610	4,040	5,140	61,100
Iridium	1,610	144	153	343	1,900
Osmium	1	--	--	--	--
Rhodium	13,200	924	1,050	1,720	11,300
Ruthenium	13,300	593	706	1,920	10,400
Waste and scrap ⁴	41,500	1,690	3,270	3,140	29,600
Total	199,000	15,300	14,900	20,300	177,000
Exports: ³					
Palladium	42,200	2,400	3,790	2,840	31,600
Platinum	23,100	661	1,430	600	10,800
Iridium, osmium, ruthenium	906	141	124	102	781
Rhodium	677	9	113	128	367
Waste and scrap ⁴	35,200	1,170	1,180	1,090	11,900
Total	102,000	4,380	6,640	4,760	55,400
Price, average (dollars per troy ounce): ⁵					
Palladium	2,133.81	1,252.40	1,155.45	1,063.15	1,373.79
Platinum	966.54	926.60	897.18	911.10	974.91
Iridium	4,581.93	4,525.00	4,825.00	4,990.00	4,645.63
Rhodium	15,585.00	4,200.00	4,556.82	4,401.25	6,839.85
Ruthenium	577.02	465.00	465.00	465.00	466.75

-- 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:					
September:					
Low:					
Price	1,215.00	905.00	4,500.00	4,200.00	465.00
Date	Sep. 5 and 6	Sep. ²	Sep. ²	Sep. ²	Sep. ²
High:					
Price	1,305.00	987.00	4,700.00	4,200.00	465.00
Date	Sep. 20	Sep. 1	Sep. 29	Sep. ²	Sep. ²
Price, average	1,252.40	926.60	4,525.00	4,200.00	465.00
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
January–November:					
Low:					
Price	977.00	856.00	4,500.00	4,000.00	465.00
Date	Nov. 13	Nov. 13	Aug.–Sep. ²	Jul. ²	Jan.–Nov. ²
High:					
Price	1,820.00	1,135.00	4,950.00	12,400.00	485.00
Date	Jan. 10	Apr. 21	Oct. ²	Jan. ²	Jan. ² and Feb. 2
Price, average	1,373.79	974.91	4,645.63	6,839.85	466.75

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:										
September	20	639	4,690	143,000	93	3,170	766	29,100	35	1,070
October	23	686	2,900	87,100	266	8,330	761	27,100	97	2,780
November:										
Australia	--	--	--	--	--	--	1	29	(2)	2
Austria	--	--	--	--	--	--	44	1,730	7	177
Belgium	--	--	34	993	327	9,490	--	--	--	--
Canada	27	812	--	--	2	99	9	271	49	1,560
China	--	--	--	--	(2)	5	1	21	--	--
Colombia	4	118	--	--	16	426	10	280	--	--
Costa Rica	--	--	--	--	--	--	216	7,200	--	--
Czechia	--	--	--	--	--	--	1	32	--	--
France	--	--	--	--	--	--	14	387	--	--
Germany	--	--	193	5,630	96	3,150	225	9,250	--	--
Ireland	--	--	--	--	--	--	1	41	--	--
Italy	--	--	704	20,600	24	724	--	--	--	--
Japan	--	--	--	--	12	536	94	2,620	--	--
Korea, Republic of	--	--	218	6,320	--	--	--	--	(2)	10
Singapore	(2)	4	--	--	1	6	5	178	--	--
South Africa	--	--	2,480	71,300	34	1,120	--	--	--	--
Switzerland	--	--	--	--	--	--	29	776	1	21
United Kingdom	--	--	240	7,310	(2)	9	18	559	--	--
Total	30	933	3,870	112,000	512	15,600	669	23,400	56	1,770
January–November	596	19,100	48,000	1,510,000	2,330	88,100	9,500	358,000	739	23,900

-- 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:												
September	6,360	253,000	144	15,600	--	--	924	125,000	593	8,020	1,690	48,000
October	5,670	219,000	153	21,800	--	--	1,050	146,000	706	9,900	3,270	60,400
November: ⁴												
Belgium	407	14,400	--	--	--	--	428	56,600	--	--	33	2,350
Bolivia	--	--	--	--	--	--	--	--	--	--	12	404
Brazil	--	--	--	--	--	--	--	--	--	--	29	752
Canada	220	8,770	--	--	--	--	--	--	--	--	875	22,700
China	--	--	--	--	--	--	--	--	--	--	18	394
France	2	9	--	--	--	--	--	--	--	--	94	1,320
Germany	294	10,000	9	1,520	--	--	301	45,900	841	12,300	461	16,200
Guatemala	--	--	--	--	--	--	--	--	--	--	18	602
Italy	28	1,010	--	--	--	--	10	1,560	--	--	103	5,520
Japan	114	3,470	4	540	--	--	1	186	29	321	--	--
Korea, Republic of	311	10,600	(5)	5	--	--	31	4,030	--	--	12	389
Mexico	7	81	--	--	--	--	(5)	34	--	--	1,110	7,680
New Zealand	--	--	--	--	--	--	--	--	--	--	20	666
Russia	2,400	87,000	--	--	--	--	--	--	--	--	--	--
Singapore	--	--	--	--	--	--	--	--	--	--	44	2,760
South Africa	4,210	145,000	273	41,400	--	--	953	127,000	279	3,520	--	--
Sweden	--	--	--	--	--	--	--	--	--	--	94	12,800
Thailand	--	--	--	--	--	--	--	--	--	--	19	3,130
United Arab Emirates	--	--	--	--	--	--	--	--	--	--	50	1,630
United Kingdom	--	--	57	9,340	--	--	(5)	99	776	9,570	102	3,320
Other	2	87	--	--	--	--	--	--	--	--	43	1,340
Total	7,990	281,000	343	52,800	--	--	1,720	236,000	1,920	25,700	3,140	83,900
January–November	62,900	2,840,000	1,900	243,000	--	--	11,300	2,900,000	10,400	143,000	29,600	877,000

-- 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:										
September	2,400	89,500	661	32,700	141	19,100	9	1,150	1,170	74,400
October	3,790	144,000	1,430	48,100	124	17,700	113	16,000	1,180	92,900
November: ⁵										
Australia	4	153	11	402	5	476	--	--	--	--
Brazil	89	3,180	17	1,230	--	--	--	--	--	--
Canada	522	19,800	10	358	--	--	(6)	7	58	1,980
China	6	218	55	1,670	(6)	14	--	--	--	--
Costa Rica	1	26	51	3,490	(6)	11	--	--	--	--
Czechia	--	--	--	--	--	--	--	--	8	272
France	12	487	1	35	(6)	6	--	--	--	--
Germany	670	23,400	123	7,280	10	1,560	(6)	3	280	34,800
Hong Kong	24	1,010	5	206	2	299	127	19,900	--	--
Ireland	2	82	58	2,020	--	--	--	--	--	--
Israel	17	695	1	51	--	--	--	--	--	--
Italy	922	31,300	45	1,330	1	77	--	--	99	3,360
Japan	12	472	38	7,610	1	99	--	--	527	17,400
Malaysia	--	--	8	256	--	--	--	--	--	--
Mexico	10	458	37	1,130	1	68	--	--	--	--
Sweden	(6)	10	(6)	3	--	--	--	--	7	1,510
Switzerland	422	16,200	3	192	--	--	--	--	44	1,300
Taiwan	105	4,410	(6)	18	--	--	--	--	--	--
Thailand	7	284	3	139	--	--	--	--	--	--
United Kingdom	1	53	115	13,700	83	10,100	--	--	64	2,990
Other	13	488	18	624	(6)	9	(6)	51	5	284
Total	2,840	103,000	600	41,800	102	12,700	128	20,000	1,090	63,900
January–November	31,600	1,280,000	10,800	543,000	781	101,000	367	83,800	11,900	888,000

-- 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.