

## PLATINUM-GROUP METALS

(Palladium, platinum, iridium, osmium, rhodium, and ruthenium)

[Data in kilograms, platinum-group-metal (PGM) content, unless otherwise specified]

**Domestic Production and Use:** One company in Montana mined and processed PGMs with an estimated value of \$290 million in 2025, a decrease of 31% compared with \$420 million in 2024. Estimated total palladium and platinum production decreased by 40% compared with 2024 production owing to one operation remaining on care-and-maintenance status. Small quantities of PGMs also were recovered as byproducts of copper-nickel mining in Michigan; however, this material was exported for refining. The leading domestic use for PGMs was in catalytic converters to decrease harmful emissions from automobiles. PGMs are also used in catalysts for bulk-chemical production and petroleum refining; dental and medical devices; electronic applications, such as in computer hard disks, hybridized integrated circuits, and multilayer ceramic capacitors; glass manufacturing; investment; jewelry; and laboratory equipment.

<b>Salient Statistics—United States:</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025<sup>e</sup></b>
Mine production: <sup>1</sup>					
Palladium	13,700	10,100	10,300	10,200	6,200
Platinum	4,020	3,000	3,040	3,010	1,800
Imports for consumption: <sup>2</sup>					
Palladium	72,600	65,200	66,900	68,300	92,000
Platinum	67,900	64,200	66,800	70,500	99,000
PGM waste and scrap	160,000	41,500	32,100	52,800	150,000
Iridium	2,310	1,610	2,040	1,360	2,200
Osmium	1	1	—	1	57
Rhodium	16,500	13,200	12,100	14,500	14,000
Ruthenium	18,000	13,300	10,800	9,780	14,000
Exports: <sup>3</sup>					
Palladium	43,900	42,200	33,600	39,900	18,000
Platinum	29,400	23,100	11,300	11,700	17,000
PGM waste and scrap	37,800	35,200	13,900	13,600	24,000
Rhodium	1,350	717	453	766	340
Other PGMs	2,180	1,010	845	2,050	2,700
Consumption, apparent: <sup>4, 5</sup>					
Palladium	81,400	74,100	88,500	83,600	130,000
Platinum	51,100	52,900	67,100	68,900	92,000
Price, dollars per troy ounce: <sup>6</sup>					
Palladium	2,419.18	2,133.81	1,351.66	994.90	1,100
Platinum	1,094.31	966.54	973.00	960.70	1,200
Iridium	5,158.40	4,581.93	4,672.78	4,810.40	4,400
Rhodium	20,254.10	15,585.00	6,660.58	4,660.44	5,800
Ruthenium	576.12	577.02	466.49	451.02	690
Employment, mine, number	1,600	1,560	1,450	901	810
Net import reliance <sup>5, 7</sup> as a percentage of apparent consumption:					
Palladium	35	31	38	34	57
Platinum	75	78	83	85	89

**Recycling:** About 140,000 kilograms of palladium and platinum were recovered globally from new and old scrap in 2025, including about 50,000 kilograms of palladium and 8,600 kilograms of platinum recovered from automobile catalytic converters in the United States.

**Import Sources (2021–24):** Palladium: South Africa, 37%; Russia, 36%; Belgium, 6%; Canada, 6%, and other, 15%. Platinum: South Africa, 49%; Belgium, 10%; Germany, 10%; Italy, 8%; and other, 23%.

**Tariff:** All unwrought and semimanufactured forms of PGMs are imported duty free under normal trade relations. See footnote 2 for specific Harmonized Tariff Schedule of the United States codes.

**Depletion Allowance:**<sup>8</sup> 22% (domestic), 14% (foreign).

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### Government Stockpile:<sup>8</sup>

<u>Material</u>	<u>FY 2025</u>		<u>FY 2026</u>	
	<u>Potential acquisitions</u>	<u>Potential disposals</u>	<u>Potential acquisitions</u>	<u>Potential disposals</u>
Iridium	—	15	NA	NA
Platinum	—	261	NA	NA

**Events, Trends, and Issues:** In 2025, production of PGMs in South Africa, the world's leading producer of PGM-containing mined material, decreased by an estimated 9% compared with that in 2024 owing to declining palladium prices, higher costs associated with deep-level mining, and ongoing disruptions to the supply of electricity. Estimated production in Russia, the world's leading producer of mined palladium, decreased by 6% owing to lower metal grades and ore recovery, geopolitical and investor uncertainty related to the Russia-Ukraine conflict, and the introduction of new mining equipment at one operation.

The estimated annual average price in 2025 increased by 53% for ruthenium, by 25% for platinum, by 24% for rhodium, and by 11% for palladium compared with the average prices in 2024. The estimated annual price of iridium decreased by 9% compared with annual average price in 2024. Price increases were attributed to decreased production and increased demand, particularly for rhodium in the hard disk and chemical catalyst industries and owing to the substitution of platinum in automobile catalysts. Investment uncertainty and volatility may have also contributed to price increases. The price decrease for iridium may have been affected by increased production and the waning of investor enthusiasm in the hydrogen power market.

**World Mine Production and Reserves:** Significant revisions were made to the 2024 production for Russia and South Africa based on company and Government reports. Reserves for the United States, Russia, and Zimbabwe were revised based on company and Government reports.

	Mine production				PGM reserves <sup>9</sup>
	Palladium		Platinum		
	2024	2025 <sup>e</sup>	2024	2025 <sup>e</sup>	
United States	10,200	6,200	3,010	1,800	590,000
Canada	17,000	16,000	5,700	5,000	310,000
Russia <sup>e</sup>	89,000	84,000	22,000	20,000	<sup>10</sup> 11,000,000
South Africa	82,600	70,000	126,000	120,000	63,000,000
Zimbabwe	15,200	15,000	18,400	18,000	1,300,000
Other countries	2,870	2,900	3,860	3,900	NA
World total (rounded)	217,000	190,000	179,000	170,000	>76,000,000

**World Resources:**<sup>9</sup> World resources of PGMs are estimated to total more than 100 million kilograms. The largest resources and reserves are in the Bushveld Complex in South Africa.

**Substitutes:** Palladium has been used as a substitute for platinum in most gasoline-engine catalytic converters because of the historically lower price for palladium relative to that of platinum. About 25% of palladium can routinely be substituted for platinum in diesel catalytic converters; the proportion can be as much as 50% in some applications. For some industrial end uses, one PGM can substitute for another, but with losses in efficiency.

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

<sup>1</sup>Estimated from published sources.

<sup>2</sup>Includes data for the following Harmonized Tariff Schedule of the United States codes: 7110.11.0010, 7110.11.0020, 7110.11.0050, 7110.19.0000, 7110.21.0000, 7110.29.0000, 7110.31.0000, 7110.39.0000, 7110.41.0010, 7110.41.0020, 7110.41.0030, 7110.49.0010, and 7118.90.0020; 7112.92.0000 (2021); and 7112.92.0100 (2022–25).

<sup>3</sup>Includes data for the following Schedule B numbers: 7110.11.0000, 7110.19.0000, 7110.21.0000, 7110.29.0000, 7110.31.0000, 7110.39.0000, 7110.41.0000, and 7110.49.0000; 7112.92.0000 (2021); and 7112.92.0100 (2022–25).

<sup>4</sup>Defined as primary production + secondary production + imports – exports.

<sup>5</sup>Excludes imports and (or) exports of waste and scrap.

<sup>6</sup>Engelhard unfabricated metal average annual prices. Source: S&P Global Platts Metals Week.

<sup>7</sup>Defined as imports – exports.

<sup>8</sup>See Appendix B for definitions. For fiscal year 2026, the Annual Materials Plan was not released.

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

<sup>10</sup>Reserves for Russia are based on the State Committee of Reserves of the Russian Federation (GKZ) classification system A+B+C1+C2, where C2 are reserves in deposits that are indicated but not being developed or prepared for development. C2 reserves were excluded here.