

# Mineral Industry Surveys

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## PLATINUM-GROUP METALS IN SEPTEMBER 2020

Imports for consumption of platinum-group metals (PGMs), including waste and scrap, were 35,300 kilograms (kg) in September 2020, a decrease of 24% compared with PGM imports in August 2020 and double compared with imports in September 2019 (table 1). The leading import sources for PGMs into the United States in September 2020 were, in descending order, the United Kingdom, South Africa, and Switzerland (tables 3, 4). In September 2020, exports of palladium increased by 26%, platinum increased by 76%, and PGM waste and scrap increased by 9% compared with exports in August 2020 (table 5). Exports of rhodium decreased by 54% in September 2020 compared with exports in August 2020.

Compared with the prior month, the Engelhard average September prices were unchanged for ruthenium and essentially unchanged for iridium. Prices increased by 6% for palladium, and by 22% for rhodium in September 2020 compared with the previous month whereas prices decreased by 3% for platinum. Compared with average prices in September 2019, the September 2020 average prices decreased by 4% for platinum and increased by 10% for ruthenium, by 12% for iridium, by 44% for palladium, and almost tripled for rhodium (figs. 1, 2; tables 1, 2).

## Industry News

Platinum Group Metals Ltd. (Canada) and Lion Battery Technologies Inc. (Canada) announced that a patent was issued to Florida International University by the United States Patent and Trademark Office for battery technology that uses PGMs to enhance lithium battery performance. The funding for the

research and patent was provided by Lion Battery Technologies Inc., a joint venture between Platinum Group Metals Ltd. and Anglo American Platinum Ltd. (South Africa), as part of a 3-year sponsored agreement with Florida International University (Kuykendall, 2020; Platinum Group Metals Ltd., 2020).

## Reference Cited

Kuykendall, Taylor, 2020, New tech could open doors to next-level batteries—Platinum Group Metals CEO: New York, NY, S&P Global Corporation, September 23. (Accessed November 3, 2020, via <https://spglobal.com>.)  
Platinum Group Metals Ltd., 2020, Anglo American Platinum and Platinum Group Metals Ltd. subsidiary Lion Battery Technologies granted US patent: Vancouver, British Columbia, Canada, Platinum Group Metals Ltd. press release, September 14. (Accessed October 2, 2020, at <http://www.platinumgroupmetals.net/investor-relations/news/press-releases/press-releases-details/2020/Anglo-American-Platinum-and-Platinum-Group-Metals-Ltd.-Subsidiary-Lion-Battery-Technologies-Granted-US-Patent/default.aspx>.)

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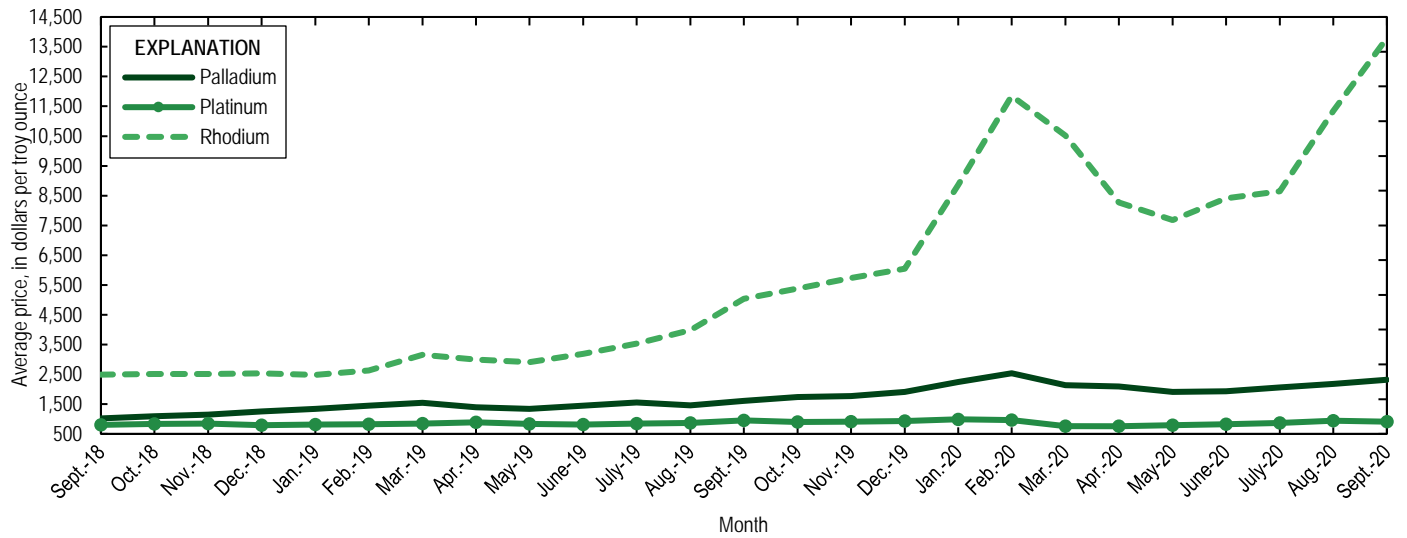


Figure 1. Engelhard unfabricated average monthly prices for palladium, platinum, and rhodium from September 2018 through September 2020. Source: Platts Metals Week.

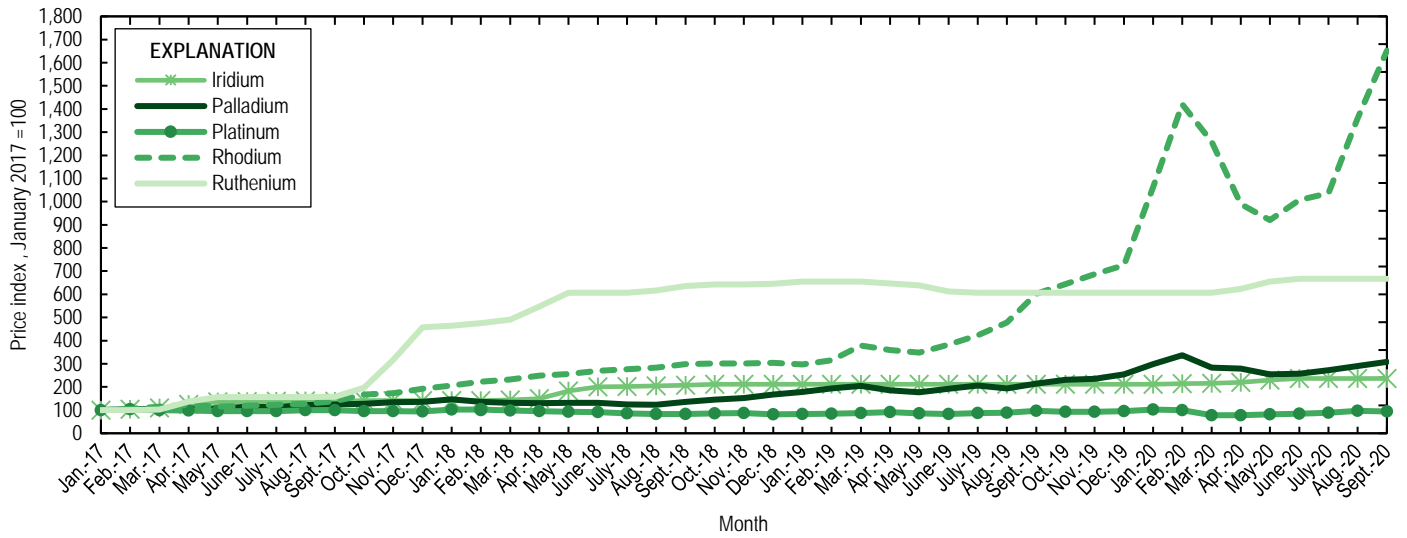


Figure 2. Indexed Engelhard unfabricated average monthly prices for iridium, palladium, platinum, rhodium, and ruthenium from January 2017 through September 2020. Prices are indexed to January 2017. Source: Platts Metals Week.

TABLE 1  
U.S. SALIENT PLATINUM-GROUP METALS STATISTICS<sup>1</sup>

(Kilograms metal content, unless otherwise specified)

	2019	2020			
	January– December	July	August	September	January– September
<b>Mine production:<sup>2</sup></b>					
Palladium	14,300	1,190 <sup>r</sup>	1,190 <sup>r</sup>	1,190	10,800
Platinum	4,150	344 <sup>r</sup>	344 <sup>r</sup>	344	3,100
<b>Total</b>	<b>18,500</b>	<b>1,530 <sup>r</sup></b>	<b>1,530 <sup>r</sup></b>	<b>1,530</b>	<b>13,900</b>
<b>Imports for consumption:<sup>3</sup></b>					
Palladium	84,300	6,210	6,000	5,560	57,000
Platinum	42,300	7,220	7,690	6,860	49,600
Iridium	875	52	51	172	966
Osmium	(4)	--	--	1	1
Rhodium	15,000	1,670	1,570	1,770	15,100
Ruthenium	11,200	368	941	1,110	8,210
Waste and scrap <sup>5</sup>	54,300	13,800	30,200	19,800	125,000
<b>Total</b>	<b>208,000</b>	<b>29,300</b>	<b>46,400</b>	<b>35,300</b>	<b>256,000</b>
<b>Exports:<sup>3</sup></b>					
Palladium	55,500	4,640	4,150	5,210	33,500
Platinum	17,400	2,070	2,760	4,840	19,300
Iridium, osmium, ruthenium	1,330	89	122	65	1,110
Rhodium	1,210	114	171	79	1,140
Waste and scrap <sup>5</sup>	20,800	1,090	3,940	4,290	27,300
<b>Total</b>	<b>96,200</b>	<b>8,010</b>	<b>11,100</b>	<b>14,500</b>	<b>82,300</b>
<b>Price, average (dollars per troy ounce):<sup>6</sup></b>					
Palladium	1,544.31	2,056.55	2,181.90	2,313.71	2,152.66
Platinum	866.94	867.64	943.57	911.95	867.85
Iridium	1,485.80	1,660.00	1,660.00	1,661.90	1,591.08
Rhodium	3,918.78	8,645.45	11,348.81	13,790.48	9,903.95
Ruthenium	262.59	280.00	280.00	280.00	269.16

<sup>r</sup>Revised. -- Zero.

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

<sup>2</sup>Data estimated based on publicly reported quarterly data.

<sup>3</sup>Source: U.S. Census Bureau.

<sup>4</sup>Less than ½ unit.

<sup>5</sup>Includes waste and scrap for all platinum-group elements. Previously included within platinum.

<sup>6</sup>Source: Platts Metals Week.

TABLE 2  
PLATINUM-GROUP METALS PRICES<sup>1</sup>

(Dollars per troy ounce)

	Palladium	Platinum	Iridium	Rhodium	Ruthenium
<b>2019:</b>					
<b>Low:</b>					
Price	1,273.00	785.00	1,485.00	2,460.00	255.00
Date	Jan. 2	Feb. 14	Nov. <sup>2</sup>	Jan. <sup>2</sup>	Jun.–Dec. <sup>2</sup>
<b>High:</b>					
Price	1,977.00	985.00	1,490.00	6,150.00	275.00
Date	Dec. 13	Dec. 31	Oct.–Dec. <sup>2</sup>	Dec. <sup>2</sup>	Jan.–Apr. <sup>2</sup>
Price, average	1,544.31	866.94	1,485.80	3,918.78	262.59
<b>2020:</b>					
<b>August:</b>					
<b>Low:</b>					
Price	2,111.00	903.00	1,660.00	8,900.00	280.00
Date	Aug. 4	Aug. 21	(2)	Aug. 3	(2)
<b>High:</b>					
Price	2,232.00	989.00	1,660.00	12,600.00	280.00
Date	Aug. 6	Aug. 10	(2)	(2)	(2)
Price, average	2,181.90	943.57	1,660.00	11,348.81	280.00
<b>September:</b>					
<b>Low:</b>					
Price	2,219.00	834.00	1,660.00	12,400.00	280.00
Date	Sep. 25	Sep. 24	(2)	Sep. 1	(2)
<b>High:</b>					
Price	2,422.00	980.00	1,670.00	14,600.00	280.00
Date	Sep. 16	Sep. 15	(2)	Sep. 15 and 16	(2)
Price, average	2,313.71	911.95	1,661.90	13,790.48	280.00
<b>January–September:</b>					
<b>Low:</b>					
Price	1,585.00	610.00	1,490.00	6,000.00	255.00
Date	Mar. 17	Mar. 19	Jan.–Feb. <sup>2</sup>	Mar. <sup>2</sup>	Jan.–Apr. <sup>2</sup>
<b>High:</b>					
Price	2,790.00	1,020.00	1,675.00	14,600.00	280.00
Date	Feb. 19	Jan. 16	Jun. <sup>2</sup>	Sep. 15 and 16	May–Sep. <sup>2</sup>
Price, average	2,152.66	867.85	1,591.08	9,903.95	269.16

<sup>1</sup>Quotes from Engelhard.

<sup>2</sup>Occurred multiple days in month(s) listed.

Source: Platts Metals Week.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF PLATINUM METAL, BY COUNTRY OR LOCALITY<sup>1</sup>

(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)
2019, January–December	360	\$12,700	26,200	\$726,000	3,880	\$168,000	10,600	\$320,000	1,320	\$40,600
2020:										
July	15	435	2,940	79,300	669	18,700	3,450	105,000	145	4,460
August	18	582	1,660	48,300	383	23,900	5,510	177,000	113	3,620
September:										
Australia	--	--	--	--	--	--	--	--	145	4,720
Belgium	--	--	493	14,800	--	--	--	--	--	--
Canada	14	434	--	--	--	--	65	2,060	25	808
Colombia	--	--	--	--	41	1,200	--	--	--	--
Costa Rica	--	--	--	--	--	--	81	3,280	--	--
France	--	--	--	--	--	--	16	503	--	--
Germany	--	--	438	13,200	91	3,050	263	14,800	--	--
India	--	--	--	--	9	460	--	--	--	--
Ireland	--	--	--	--	(2)	4	(2)	5	--	--
Italy	--	--	177	5,240	--	--	1	30	--	--
Japan	--	--	501	14,900	(2)	11	1	16	--	--
Korea, Republic of	--	--	26	794	--	--	(2)	11	--	--
Portugal	--	--	--	--	--	--	(2)	6	--	--
Singapore	--	--	--	--	(2)	19	10	382	--	--
South Africa	--	--	932	27,600	144	4,680	--	--	--	--
Switzerland	--	--	--	--	505	16,100	2,770	78,100	--	--
Taiwan	--	--	--	--	--	--	80	1,600	--	--
United Kingdom	--	--	--	--	--	--	37	1,150	1	31
Total	14	434	2,570	76,700	791	25,500	3,320	102,000	171	5,560
January–September	128	3,720	22,200	616,000	4,150	197,000	21,400	680,000	1,770	51,400

-- Zero.

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

<sup>2</sup>Less than ½ unit.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF PLATINUM-GROUP METALS, BY COUNTRY OR LOCALITY<sup>1</sup>

(Kilograms metal content, unless otherwise specified)

Country or locality	Palladium <sup>2</sup>		Iridium <sup>2</sup>		Osmium <sup>2</sup>		Rhodium <sup>2</sup>		Ruthenium <sup>2</sup>		Waste and scrap <sup>3</sup>	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
2019, January–December	84,300	\$3,770,000	875	\$38,300	(4)	\$2	15,000	\$1,660,000	11,200	\$91,600	54,300	\$1,100,000
2020:												
July	6,210	338,000	52	2,540	--	--	1,670	239,000	368	3,110	13,800	74,100
August	6,000	405,000	51	2,460	--	--	1,570	335,000	941	7,870	30,200	108,000
September: <sup>5</sup>												
Belgium	228	16,000	--	--	--	--	120	27,200	--	--	--	--
Brazil	--	--	--	--	--	--	--	--	--	--	299	9,030
Canada	193	15,400	--	--	--	--	--	--	--	--	261	23,600
France	--	--	--	--	--	--	--	--	--	--	37	1,440
Germany	516	37,800	13	429	--	--	308	121,000	192	1,520	370	19,900
Hungary	--	--	--	--	--	--	--	--	--	--	22	1,550
India	--	--	--	--	--	--	--	--	--	--	26	1,070
Italy	180	13,100	--	--	--	--	319	13,100	--	--	103	3,340
Japan	11	2,060	15	434	--	--	22	671	--	--	446	14,300
Korea, Republic of	267	20,000	--	--	--	--	--	--	--	--	--	--
Malaysia	--	--	--	--	--	--	--	--	--	--	41	1,020
Mexico	--	--	--	--	--	--	--	--	--	--	636	21,900
Netherlands	--	--	--	--	--	--	--	--	--	--	129	3,740
Russia	2,070	154,000	12	369	--	--	94	37,400	--	--	--	--
Singapore	--	--	--	--	--	--	--	--	--	--	92	2,670
South Africa	2,010	146,000	100	4,730	--	--	904	295,000	891	7,620	--	--
Switzerland	65	4,860	--	--	--	--	1	161	--	--	--	--
Taiwan	--	--	--	--	--	--	--	--	--	--	31	350
Thailand	--	--	--	--	--	--	--	--	--	--	55	3,850
United Kingdom	23	1,550	32	1,580	--	--	1	11	24	205	17,300	11,000
Other	1	61	--	--	1	17	(4)	4	--	--	38	1,140
Total	5,560	411,000	172	7,540	1	17	1,770	494,000	1,110	9,340	19,800	120,000
January–September	57,000	3,110,000	966	43,600	1	17	15,100	2,750,000	8,210	67,400	125,000	1,000,000

-- Zero.

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

<sup>2</sup>Unwrought and other forms.

<sup>3</sup>Includes waste and scrap for all platinum-group elements.

<sup>4</sup>Less than ½ unit.

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

Source: U.S. Census Bureau.

TABLE 5  
U.S. EXPORTS OF PLATINUM-GROUP METALS, BY COUNTRY OR LOCALITY<sup>1</sup>

(Kilograms metal content, unless otherwise specified)

Country or locality	Palladium <sup>2</sup>		Platinum <sup>2</sup>		Iridium, osmium and ruthenium <sup>2,3</sup>		Rhodium <sup>2</sup>		Waste and scrap <sup>4</sup>	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
2019, January–December	55,500	\$1,620,000	17,400	\$547,000	1,330	\$19,300	1,210	\$152,000	20,800	\$724,000
2020:										
July	4,640	301,000	2,070	56,600	89	1,210	114	33,500	1,090	54,700
August	4,150	277,000	2,760	82,000	122	1,150	171	49,500	3,940	130,000
September: <sup>5</sup>										
Belgium	125	9,180	59	1,740	--	--	15	6,660	1	16
Brazil	279	19,600	--	--	--	--	11	4,870	--	--
Canada	193	12,900	92	2,780	(6)	4	--	--	(6)	4
China	11	254	22	537	10	530	--	--	--	--
Costa Rica	5	228	103	1,560	--	--	--	--	--	--
France	14	342	5	116	(6)	5	--	--	--	--
Germany	70	2,170	55	2,040	3	42	1	295	1,830	54,500
Hong Kong	56	2,660	12	302	--	--	(6)	48	--	--
India	95	5,210	17	488	--	--	--	--	--	--
Ireland	8	130	25	768	--	--	--	--	--	--
Israel	10	720	1	15	--	--	--	--	--	--
Italy	767	56,100	704	20,400	3	63	7	3,320	12	929
Japan	15	127	108	3,510	15	167	--	--	1,230	72,500
Korea, Republic of	12	156	1	43	--	--	(6)	4	--	--
Mexico	3	25	204	5,760	9	104	--	--	--	--
Singapore	2	14	95	2,830	--	--	--	--	--	--
South Africa	--	--	--	--	--	--	39	18,300	37	1,340
Switzerland	1,400	90,800	2,450	69,800	2	11	5	2,010	27	790
Taiwan	117	8,140	16	487	21	91	--	--	--	--
United Kingdom	2,020	174,000	862	25,400	(6)	4	--	--	1,160	34,800
Other	18	575	9	270	1	41	--	--	--	--
Total	5,210	383,000	4,840	139,000	65	1,060	79	35,500	4,290	165,000
January–September	33,500	2,010,000	19,300	607,000	1,110	15,700	1,140	280,000	27,300	1,070,000

-- Zero.

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

<sup>2</sup>Unwrought and other forms.

<sup>3</sup>Gross weight.

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

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

<sup>6</sup>Less than ½ unit.

Source: U.S. Census Bureau.