

# Mineral Industry Surveys

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**For information, contact:**

Patricia J. Loferski, PGM Commodity Specialist  
U.S. Geological Survey  
989 National Center  
Reston, VA 20192  
Telephone: (703) 648-7708, Fax: (703) 648-7757  
E-mail: ploferski@usgs.gov

Lin Shi (Data)  
Telephone: (703) 648-7994  
Fax: (703) 648-7975  
E-mail: lshi@usgs.gov

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

## PLATINUM-GROUP METALS IN JULY 2008

According to Platts Metals Week, the average July prices of platinum and palladium dropped by 7% and 6%, respectively, as compared with the average prices in June. The average price of rhodium decreased by 4% and that of ruthenium dropped slightly over the same time period. The iridium price has held steady at \$450 per troy ounce since February 13, 2007. Prices of platinum, palladium, and rhodium decreased steadily throughout the month, in response both to a decline in automobile production in North America and to a stronger dollar. Sales of 778 kilograms (kg) of platinum ETFs also led to lower prices of that metal. Ruthenium prices reversed their 3-month decline and increased slightly in early July as a result of increased buying interest (Johnson Matthey plc, 2008).

Stillwater Mining Co. (SMC) (Billings, MT) announced that union employees at the company's East Boulder Mine, represented by USW International Union, ratified a new 4-year labor agreement. SMC reported production for the quarter ending June 30 of 902 kg platinum, 3,020 kg palladium, and 31 kg rhodium. Platinum and palladium production decreased by 6% and 5%, respectively, compared with production in the second quarter of 2007, whereas rhodium production was unchanged. The drop in production occurred mainly at the East Boulder Mine and was attributed to labor shortages and challenges of switching to more selective mining methods. Production estimates of PGM for 2008 were revised downward to 16,000 to 16,300 kg from 17,100 to 17,600 kg. SMC production of PGM from recycled material for the quarter ending June 30 was 3,380 kg, a 24% increase relative to production in the same quarter of 2007. Construction of a second smelter to allow an increase in recycling operations was underway in Columbus, MT, and the smelter was expected to be operational in late 2008 or early 2009 (Stillwater Mining Co., 2008).

North American Palladium Ltd. (Toronto, Ontario, Canada) produced 2,050 kg of palladium in the quarter ending June 30, a slight decrease compared with production in the same quarter of 2007 (North American Palladium Ltd., 2008). MMC Norilsk Nickel (Moscow, Russia) reported production for the quarter ending June 30 of 26,200 kg palladium and 6,200 kg platinum from its operations in Russia, Finland, Australia, and Africa

(MMC Norilsk Nickel, 2008). Production by Anglo Platinum Ltd. (Johannesburg, South Africa) for the quarter ending June 30 was 17,800 kg platinum, 9,360 kg palladium, and 1,844 kg rhodium, decreases of 34%, 22%, and 3%, respectively, relative to production in the same quarter of 2007. The decreased production was attributed to disruption resulting from flooding at the Amandelbult Mine (Anglo Platinum Ltd, 2008, p. 31). South African production by Aquarius Platinum Ltd. (South Perth, Australia) for the quarter ending June 30 decreased slightly to 3,400 kg relative to first quarter production as a result of labor issues (Aquarius Platinum Ltd., 2008). Lonmin, plc (London, United Kingdom) shut down its number one furnace for 7 days because of a water leak, and the resulting loss in output was 155 to 311 kg platinum. Lonmin expected to make up the loss before the end of the financial year ending September (Derby and Wessel, 2008). Lonmin announced production for the quarter ending June 30 of 5,900 kg platinum and 11,500 kg total PGM, decreases of 20% and 15%, respectively, compared with production levels in the same quarter of 2007 (Lonmin plc, 2008).

Australian exploration company Impact Minerals Ltd. (Northbridge, Western Australia) formed an alliance with Impala Platinum Holdings Ltd. (Johannesburg, South Africa) to explore for and develop nickel-PGM deposits in southern Africa. Impala agreed to spend \$800,000 over 2 years on project generation, and exploration will focus on Botswana, Madagascar, Malawi, Mozambique, Namibia, and Zambia (Creamer, 2008).

Two groups in South Africa, Braemore Resources (London, United Kingdom) and Ridge Mining plc (London, United Kingdom), evaluated development of independent PGM smelter-refinery complexes to treat ore concentrates from junior and other PGM companies. Braemore began a feasibility study for a 10-megawatt ConRoast smelter to be built near Rustenburg, with commissioning planned for 2010. Plans for a larger facility that would include a base metal refinery were being evaluated. Ridge Mining plc was considering development of a base and precious metals smelter/refinery complex to treat ores from its Sheba's Ridge Mine as well as provide toll refining for other companies (Ryan, 2008).

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

(Dollars per troy ounce)

	Platinum	Palladium	Rhodium	Iridium	Ruthenium
<b>2007:</b>					
Low/date	1,122.00 Jan. 8	322.00 Aug. 22	5,550.00 Jan. <sup>2</sup>	400.00 Jan. and Feb. <sup>2</sup>	375.00 Jul. <sup>2</sup>
High/date	1,547.00 Dec. 27	385.00 Apr. 20	6,850.00 Dec. <sup>2</sup>	450.00 Feb.—Dec. <sup>2</sup>	870.00 Feb. <sup>2</sup>
Average	1,308.40	357.34	6,203.09	444.43	573.74
<b>2008:</b>					
<b>June:</b>					
Low/date	1,990.00/05	424.00/05	9,525.00 <sup>2</sup>	450.00 <sup>2</sup>	300.00 <sup>2</sup>
High/date	2,108.00/18	480.00/20	10,100.00/18	450.00 <sup>2</sup>	330.00/02
Average	2,042.24	453.57	9,777.38	450.00	306.19
<b>July:</b>					
Low/date	1,730.00/24	377.00/30	8,250.00/30	450.00 <sup>2</sup>	300.00 <sup>2</sup>
High/date	2,080.00/01	468.00 <sup>2</sup>	9,825.00/07	450.00 <sup>2</sup>	305.00 <sup>2</sup>
Average	1,904.68	428.27	9,380.68	450.00	304.09
<b>Year-to-date:</b>					
Low/date	1,534.00 Jan. 7	368.00 Jan. 22	6,850.00 Jan. 2	450.00 Jan.—July <sup>2</sup>	300.00 June and July <sup>2</sup>
High/date	2,275.00 Mar. 4	585.00 Mar. 4	10,100.00 June 18	450.00 Jan.—July <sup>2</sup>	440.00 Feb. and Mar. <sup>2</sup>
Average	1,946.62	444.38	8,945.96	450.00	379.88

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

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

Source: Platts Metals Week.

TABLE 2  
U.S. IMPORTS FOR CONSUMPTION OF PLATINUM METAL, BY COUNTRY<sup>1</sup>

(Kilograms metal content, unless otherwise specified)

Period and country	Platinum grain and nuggets		Platinum sponge		Other unwrought platinum		Platinum, other		Platinum waste and scrap		Platinum coins	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
2007	621	\$20,100	65,900	\$2,620,000	3,940	\$145,000	10,200	\$330,000	206,000	\$504,000	58	\$964
2008:												
April	5	281	3,380	216,000	188	11,500	727	29,300	12,500	58,700	4	104
May	1	59	4,760	308,000	482	26,500	529	23,000	6,460	91,800	(2)	7
June:												
Australia	--	--	--	--	--	--	187	12,300	--	--	--	--
Belgium	--	--	93	6,360	--	--	--	--	--	--	--	--
Bolivia	--	--	--	--	--	--	--	--	1,870 <sup>3</sup>	356	--	--
Brazil	--	--	233	15,400	--	--	--	--	3,870 <sup>3</sup>	8,910	--	--
Canada	2	132	--	--	--	--	94	5,150	495	22,500	1	57
Chile	--	--	--	--	--	--	--	--	98 <sup>3</sup>	1,420	--	--
China	--	--	--	--	--	--	--	--	1,790 <sup>3</sup>	3,270	--	--
Colombia	--	--	--	--	122	5,730	--	--	81 <sup>3</sup>	2,110	--	--
Czech Republic	--	--	--	--	--	--	--	--	53 <sup>3</sup>	632	--	--
France	--	--	--	--	--	--	--	--	20	1,040	--	--
Germany	--	--	6	446	113 <sup>3</sup>	4,990	503	15,400	287	25,700	--	--
Hong Kong	--	--	--	--	--	--	--	--	73 <sup>3</sup>	2,340	--	--
Israel	--	--	--	--	19	688	--	--	7	450	--	--
Italy	--	--	138	9,070	3	151	138	9,200	--	--	--	--
Japan	--	--	370	23,900	4 <sup>3</sup>	44	4 <sup>3</sup>	79	--	--	--	--
Jordan	--	--	--	--	--	--	--	--	15 <sup>3</sup>	200	--	--
Korea, Republic of	--	--	--	--	--	--	--	--	29 <sup>3</sup>	1,200	--	--
Mexico	--	--	--	--	13	786	2	95	493	35,100	--	--
Norway	--	--	62	4,040	--	--	--	--	--	--	--	--
Panama	--	--	--	--	--	--	--	--	3 <sup>3</sup>	40	--	--
Philippines	--	--	--	--	--	--	--	--	15 <sup>3</sup>	420	--	--
Russia	--	--	99	6,530	61	4,000	--	--	--	--	--	--
South Africa	--	--	2,910	188,000	--	--	222	11,900	--	--	--	--
St. Lucia	--	--	--	--	(2) <sup>3</sup>	5	--	--	--	--	--	--
Switzerland	--	--	742 <sup>3</sup>	10,200	--	--	4	97	--	--	(2)	8
United Kingdom	--	--	2,180	142,000	--	--	43	1,590	--	--	10	444
Venezuela	--	--	--	--	--	--	--	--	192 <sup>3</sup>	204	--	--
Total	2	132	6,830	407,000	335	16,400	1,200	55,700	9,390	106,000	11	509
Year to date	177	5,620	29,100	1,690,000	1,810	99,400	4,870	219,000	56,000	371,000	19	1,000

-- 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.

<sup>3</sup>All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF PLATINUM-GROUP METALS, BY COUNTRY<sup>1</sup>

(Kilograms metal content, unless otherwise specified)

Period and country	Unwrought palladium		Palladium, other		Iridium <sup>2</sup>		Osmium <sup>2</sup>		Ruthenium <sup>2</sup>		Rhodium <sup>2</sup>	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
2007	101,000	\$1,120,000	11,600	\$129,000	3,410	\$41,900	23	\$192	48,700	\$655,000	16,600	\$2,650,000
2008:												
April	6,850	98,000	315	4,870	178	2,610	--	--	4,270	42,100	845	201,000
May	7,760	108,000	98	1,320	119	1,660	8	56	3,480	31,900	1,130	285,000
June:												
Belgium	600	8,930	--	--	--	--	--	--	--	--	475	142,000
Canada	168 <sup>3</sup>	4,030	--	--	--	--	--	--	--	--	--	--
Estonia	--	--	--	--	--	--	--	--	2,340	16,900	--	--
Germany	35	448	28 <sup>3</sup>	116	6 <sup>3</sup>	136	--	--	5,900	41,400	159 <sup>3</sup>	16,900
Italy	132	2,000	33 <sup>3</sup>	263	--	--	--	--	--	--	33 <sup>3</sup>	9,910
Japan	1,180 <sup>3</sup>	2,120	32 <sup>3</sup>	150	--	--	--	--	40	360	--	--
Korea, Republic of	--	--	--	--	3	42	--	--	--	--	--	--
Mexico	--	--	--	--	--	--	--	--	--	--	1 <sup>3</sup>	33
Niger	--	--	(4)	15	--	--	--	--	--	--	--	--
Norway	532	7,360	--	--	--	--	--	--	--	--	--	--
Russia	7,460	106,000	1,000	13,900	--	--	--	--	--	--	247	73,600
South Africa	4,680	64,600	--	--	168	2,330	--	--	1,510	15,500	1,470	415,000
Switzerland	--	--	38 <sup>3</sup>	792	--	--	--	--	--	--	--	--
United Kingdom	2,690	36,600	63	1,010	365 <sup>3</sup>	5,320	--	--	893	8,800	448	138,000
Total	17,500	232,000	1,200	16,200	541	7,830	--	--	10,700	83,000	2,830	796,000
Year to date	61,600	820,000	4,220	66,500	1,540	22,500	11	101	29,500	287,000	8,690	2,030,000

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

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4  
U.S. EXPORTS OF PLATINUM-GROUP METALS, BY COUNTRY<sup>1</sup>

(Kilograms of metal content, unless otherwise specified)

Period and country	Platinum <sup>2</sup>		Platinum waste and scrap		Palladium <sup>2</sup>		Iridium, osmium, and ruthenium <sup>2,3</sup>		Rhodium <sup>2</sup>	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
2007	28,900	\$763,000	54,400	\$924,000	41,800	\$298,000	8,190	\$145,000	2,210	\$401,000
2008:										
April	1,550	69,400	5,540	106,000	1,830	15,400	993	12,600	58	14,300
May	2,250	88,700	3,790	81,500	3,230	21,300	310	4,220	135	36,000
June:										
Australia	1 <sup>4</sup>	75	--	--	68 <sup>4</sup>	657	--	--	--	--
Austria	9 <sup>4</sup>	206	--	--	1 <sup>4</sup>	4	--	--	--	--
Belgium	3 <sup>4</sup>	37	43 <sup>4</sup>	3,290	1 <sup>4</sup>	11	--	--	--	--
Brazil	8	516	--	--	37	511	--	--	12	3,710
Canada	75 <sup>4</sup>	3,940	91 <sup>4</sup>	2,870	319 <sup>4</sup>	5,910	3 <sup>4</sup>	55	16 <sup>4</sup>	5,220
China	77	4,610	--	--	45 <sup>4</sup>	512	35 <sup>4</sup>	449	32 <sup>4</sup>	3,480
Colombia	1 <sup>4</sup>	7	--	--	2	33	--	--	--	--
Cyprus	13	893	--	--	--	--	--	--	--	--
Czech Republic	--	--	--	--	7 <sup>4</sup>	65	--	--	--	--
Denmark	(5) <sup>4</sup>	8	--	--	9 <sup>4</sup>	146	--	--	--	--
France	4 <sup>4</sup>	113	1 <sup>4</sup>	4	153 <sup>4</sup>	1,790	5 <sup>4</sup>	51	--	--
Georgia	--	--	2	152	--	--	-- <sup>4</sup>	--	--	--
Germany	367 <sup>4</sup>	18,100	2,580 <sup>4</sup>	33,000	263 <sup>4</sup>	1,530	1	14	--	--
Hong Kong	2 <sup>4</sup>	409	--	--	91 <sup>4</sup>	760	222	2,580	27	8,670
India	27 <sup>4</sup>	2,370	--	--	2 <sup>4</sup>	6	--	--	--	--
Ireland	24 <sup>4</sup>	480	--	--	8 <sup>4</sup>	16	1 <sup>4</sup>	3	--	--
Israel	1 <sup>4</sup>	29	--	--	355 <sup>4</sup>	1,190	--	--	--	--
Italy	103 <sup>4</sup>	6,290	--	--	114 <sup>4</sup>	1,140	--	--	(5) <sup>4</sup>	7
Japan	377	19,500	189	13,500	555 <sup>4</sup>	4,750	110 <sup>4</sup>	1,150	117	36,700
Korea, Republic of	9 <sup>4</sup>	210	89 <sup>4</sup>	316	32 <sup>4</sup>	184	--	--	--	--
Malaysia	(5) <sup>4</sup>	5	--	--	1 <sup>4</sup>	5	2 <sup>4</sup>	12	--	--
Mexico	4 <sup>4</sup>	141	--	--	7 <sup>4</sup>	42	7 <sup>4</sup>	153	(5)	57
Netherlands	(5) <sup>4</sup>	73	--	--	2	30	--	--	--	--
New Zealand	(5)	20	--	--	8 <sup>4</sup>	126	--	--	--	--
Norway	(5) <sup>4</sup>	7	--	--	8 <sup>4</sup>	155	--	--	--	--
Philippines	(5) <sup>4</sup>	36	--	--	--	--	--	--	--	--
Romania	(5) <sup>4</sup>	14	--	--	2 <sup>4</sup>	12	--	--	--	--
Singapore	(5) <sup>4</sup>	5	--	--	7 <sup>4</sup>	50	--	--	--	--
Slovenia	--	--	--	--	5 <sup>4</sup>	16	--	--	--	--
South Africa	--	--	922 <sup>4</sup>	40,300	2 <sup>4</sup>	19	--	--	--	--
Spain	3 <sup>4</sup>	36	--	--	26 <sup>4</sup>	197	--	--	--	--
Switzerland	6 <sup>4</sup>	218	--	--	23	323	--	--	--	--
Taiwan	48 <sup>4</sup>	1,880	--	--	202 <sup>4</sup>	1,130	8 <sup>4</sup>	42	--	--
Thailand	(5) <sup>4</sup>	21	--	--	8 <sup>4</sup>	95	--	--	--	--
Turkey	1 <sup>4</sup>	15	--	--	1 <sup>4</sup>	13	--	--	--	--
United Arab Emirates	(5) <sup>4</sup>	10	--	--	2 <sup>4</sup>	19	--	--	--	--
United Kingdom	109 <sup>4</sup>	2,860	2,910 <sup>4</sup>	185,000	667 <sup>4</sup>	4,540	43	633	(5) <sup>4</sup>	4
Other	1 <sup>4</sup>	49	--	--	36	130	--	--	--	--
Total	1,270	63,200	6,830	278,000	3,070 <sup>4</sup>	26,100	436	5,140	205	57,900
Year to date	7,620	329,000	33,600	768,000	16,300	132,000	2,610	33,700	1,420	237,000

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

<sup>5</sup>Less than ½ unit.

Source: U.S. Census Bureau.