

Mineral Industry Surveys

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PLATINUM-GROUP METALS IN AUGUST 2004

On September 7, 2004, the Defense National Stockpile Center (DNSC) announced aggregated August 2004 platinum-group metals (PGM) sales results under basic ordering agreement DLA-PGM-002. During August, DNSC sold 28 kilograms (kg) of iridium and 109 kg of palladium, for an overall value of \$807,000. Awards were made to A-1 Specialized Services & Supplies, Inc., Croydon, PA; Johnson Matthey, Inc., Wayne, PA; Mitsui & Co., New York, NY; and PGM Trading Corp., New York, NY (Defense National Stockpile Center, 2004).

The price of rhodium increased from under \$1,000 per troy ounce to over \$1,500 per troy ounce on August 10, a 3-year high. The sharp increase in price appeared to be the result of leased metal not being rolled forward, resulting in consumers and speculators having to buy the metal instead. The decrease in metal available to the market caused lease rates to rise to a range of 12% to 15%. Lease rates are normally about 2.5% to 3.5% (CRU International Ltd., 2004).

An improved design concept for direct methanol fuel cells makes it possible to construct fuel-cell stacks that can weigh as little as one-third as much as conventional bipolar fuel-cell stacks of equal power. Typically, about 80% of the mass of a conventional fuel-cell stack is in the biplates, end plates, and tie

rods. The biplates are usually made of graphite composite materials and must be machined or molded to contain flow channels, at a cost that is usually a major part of the total cost of the stack. The new design eliminates the biplates, end plates, and tie rods. Moreover, in comparison with conventional fuel-cell stacks, the new fuel-cell stacks can be assembled, disassembled, and diagnosed for malfunctions more easily. These improvements could help bring direct methanol fuel cells closer to commercialization. A fuel cell is an electrochemical device that converts the chemical energy in a fuel (with the aid of a platinum catalyst) directly into electrical energy (NASA Tech Briefs, 2004).

References Cited

- CRU International Ltd., 2004, Rhodium soars above \$1,500/oz: London, United Kingdom, CRU International Ltd., September, p. 5.
Defense National Stockpile Center, 2004, Stockpile announces PGM BOA sales for August 2004: Fort Belvoir, VA, Defense National Stockpile Center news release, September 7, 1 p.
NASA Tech Briefs, 2004, Lightweight stacks of direct methanol fuel cells: NASA Tech Briefs, v. 28, no. 8, August, p. 39.

TABLE 1
PLATINUM-GROUP METALS PRICES¹

(Dollars per troy ounce)

	Platinum	Palladium	Rhodium	Iridium	Ruthenium
2003:					
Low/date	605.00 April 30	151.00 April 16	NA	NA	NA
High/date	842.00 December 17	273.00 January 23	NA	NA	NA
Average	694.44	203.00	NA	NA	NA
2004:					
June:					
Low/date	778.00/15	219.00/14 and 15	830.00/1 and 2	210.00 ²	60.00 ²
High/date	847.00/1	256.00/1	950.00 ²	210.00 ²	60.00 ²
Average	810.59	231.32	875.00	210.00	60.00
July:					
Low/date	780.00/2	213.00/2	930.00 ²	205.00 ²	60.00 ²
High/date	834.00/20 and 21	230.00/20 and 21	1,070.00/30	210.00 ²	62.00/30
Average	813.48	222.95	974.76	206.67	60.10
August:					
Low/date	827.00/6	214.00/25	1,080.00/2	205.00 ²	62.00 ²
High/date	888.00/16	223.00/20	1,525.00/9 and 10	205.00 ²	65.00 ²
Average	851.91	217.55	1,299.55	205.00	64.45
Year to date:					
Low/date	771.00 May 10	200.00 January 5	500.00 January 5 and 6	87.00 February ²	41.00 January 5 and 6
High/date	940.00 April 19	340.00 April 12	1,525.00 August 9 and 10	230.00 March and April ²	72.00 March ²
Average	847.74	244.00	836.46	181.77	58.74

NA Not available.

¹Quotes from Engelhard Industries.

²Occured multiple days in month listed.

Source: Platts Metals Week.

TABLE 2
U.S. IMPORTS FOR CONSUMPTION OF PLATINUM METAL, BY COUNTRY¹

(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	
	Value		Value		Value		Value		Value		Value	
	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)
2003	849	\$18,600	69,700	\$1,480,000	7,210	\$143,000	4,990	\$89,700	5,670	\$37,200	16	\$426
2004:												
May	6	120	10,500	282,000	420	11,700	694	15,700	1,540	7,530	(2)	7
June	4	105	6,310	161,000	648	17,400	403	8,540	1,350	10,500	(2)	2
July:												
Belgium	--	--	69	1,750	--	--	--	--	--	--	--	--
Brazil	--	--	--	--	--	--	--	--	4 ³	30	--	--
Canada	2	44	--	--	--	--	14	369	(2)	7	--	--
Chile	--	--	--	--	--	--	--	--	121 ³	1,880	--	--
China	--	--	4	89	--	--	2	18	500 ³	80	(2)	7
Colombia	--	--	--	--	--	--	--	--	24	591	--	--
Dominican Republic	--	--	--	--	--	--	--	--	432 ³	16	--	--
France	--	--	--	--	--	--	--	--	42	1,060	--	--
Germany	--	--	70	1,870	406	10,300	108	2,070	--	--	--	--
Greece	--	--	--	--	--	--	--	--	2 ³	26	--	--
Hong Kong	--	--	--	--	--	--	--	--	10	233	--	--
India	--	--	15 ³	189	--	--	--	--	--	--	--	--
Italy	--	--	8	215	238 ³	3,460	--	--	--	--	--	--
Japan	--	--	23	549	(2) ³	7	316	8,100	29	518	--	--
Jordan	--	--	--	--	--	--	--	--	12 ³	111	--	--
Korea, Republic of	--	--	--	--	--	--	1	33	--	--	--	--
Malaysia	--	--	--	--	--	--	--	--	2,850 ³	55	--	--
Mexico	--	--	--	--	--	--	--	--	3	41	--	--
Netherlands	--	--	--	--	--	--	(2)	4	--	--	--	--
Norway	--	--	45	1,170	--	--	--	--	--	--	--	--
Philippines	--	--	--	--	--	--	--	--	5	108	--	--
Russia	--	--	--	--	380	10,400	--	--	--	--	--	--
South Africa	--	--	3,210	83,300	--	--	9	282	--	--	--	--
Switzerland	--	--	101	2,540	2	37	6	88	--	--	--	--
Taiwan	--	--	--	--	--	--	--	--	13	343	--	--
United Kingdom	1 ³	19	897	23,600	(2)	12	4	83	51	1,520	--	--
Total	3	63	4,440	115,000	1,030	24,200	458	11,100	4,100	6,620	(2)	7
Year to date	168	4,190	44,700	1,180,000	3,160	81,500	2,770	61,800	539,000	66,000	3	66

-- Zero.

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

²Less than 1/2 unit.

³All 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 COUNTRY¹

(Kilograms metal content, unless otherwise specified)

Period and country	Unwrought palladium		Palladium, other		Iridium ²		Unwrought osmium		Unwrought ruthenium		Rhodium ³	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
2003	83,500	\$518,000	21,000	\$145,000	2,200	\$6,090	53	\$430	15,900	\$16,700	12,000	\$202,000
2004:												
May	8,230	73,700	1,590	11,500	434	2,760	--	--	1,040	2,210	1,240	28,100
June	8,450	69,100	1,670	11,300	319	2,250	--	--	1,130	1,870	789	21,100
July:												
Belgium	539	3,970	--	--	--	--	--	--	--	--	326	8,940
Canada	252	2,200	--	--	--	--	--	--	--	--	--	--
China	--	--	--	--	--	--	10	68	--	--	(4)	11
Germany	40	289	233	1,880	9 ⁵	58	--	--	272	523	173 ⁵	4,670
Hong Kong	--	--	--	--	--	--	--	--	--	--	10	299
Italy	1	5	138	1,060	--	--	--	--	--	--	(4)	15
Japan	371 ⁵	1,210	72 ⁵	255	--	--	--	--	--	--	--	--
Korea, Republic of	--	--	--	--	--	--	--	--	--	--	(4)	2
Norway	304 ⁵	4,870	--	--	--	--	--	--	--	--	--	--
Russia	1,410	9,970	1,490	10,700	--	--	--	--	--	--	32	868
South Africa	3,120	22,600	48	350	45	264	--	--	1,480	2,610	501	13,700
Switzerland	--	--	738	3,740	--	--	--	--	--	--	12	400
United Kingdom	692	5,130	193	1,500	17 ⁵	187	--	--	6	13	317	10,300
Total	6,730	50,300	2,910	19,400	72	510	10	68	1,760	3,150	1,370	39,200
Year to date	68,200	532,000	10,800	80,400	2,340	12,200	45	174	9,620	16,200	7,150	164,000

-- Zero.

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

²Unwrought and other forms of iridium.

³Unwrought and other forms of rhodium.

⁴Less than 1/2 unit.

⁵All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

TABLE 4
U.S. EXPORTS OF PLATINUM-GROUP METALS, BY COUNTRY¹

(Kilograms of metal content, unless otherwise specified)

Period and country	Platinum ²		Platinum waste and scrap		Palladium ²		Iridium, osmium, and ruthenium ^{2,3}		Rhodium ²	
	Value		Value		Value		Value		Value	
	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)
2003	22,200	\$345,000	23,700	\$377,000	22,300	\$110,000	989	\$7,850	479	\$15,100
2004:										
May	2,150	29,100	2,930	53,000	3,410	17,500	25	190	16	437
June	2,230	52,600	1,840	31,200	2,070	11,000	55	499	1	146
July:										
Australia	2 ⁴	37	--	--	19	174	--	--	--	--
Austria	(5) ⁴	4	--	--	--	--	--	--	--	--
Belarus	--	--	--	--	22 ⁴	44	--	--	--	--
Belgium	--	--	20	139	1	8	--	--	--	--
Brazil	11 ⁴	75	--	--	--	--	--	--	--	--
Canada	55 ⁴	1,320	159	1,510	230	1,690	--	--	--	--
China	2 ⁴	40	--	--	14 ⁴	80	--	--	--	--
Czech Republic	--	--	--	--	2 ⁴	4	--	--	--	--
El Salvador	--	--	--	--	1 ⁴	3	--	--	--	--
Finland	2 ⁴	25	--	--	2	16	--	--	--	--
France	13 ⁴	254	--	--	48 ⁴	334	--	--	--	--
Germany	702 ⁴	13,400	335	2,160	628 ⁴	1,360	--	--	--	--
Hong Kong	54 ⁴	1,040	--	--	230 ⁴	1,260	31	315	(5) ⁴	57
Iceland	--	--	--	--	1 ⁴	7	--	--	--	--
India	--	--	--	--	--	--	--	--	1 ⁴	95
Ireland	13 ⁴	181	--	--	167 ⁴	404	--	--	--	--
Israel	--	--	--	--	179 ⁴	485	--	--	--	--
Italy	1	26	--	--	3	23	--	--	--	--
Japan	581 ⁴	11,500	14	425	197 ⁴	486	--	--	--	--
Korea, Republic of	7 ⁴	121	--	--	7	34	7	63	--	--
Liechtenstein	(5) ⁴	3	--	--	(5)	3	--	--	--	--
Malaysia	1 ⁴	9	--	--	2	11	12	63	--	--
Mexico	7 ⁴	127	--	--	1 ⁴	23	(5) ⁴	5	(5)	4
Netherlands	2 ⁴	34	--	--	308 ⁴	878	2 ⁴	56	--	--
New Zealand	--	--	--	--	4	32	--	--	--	--
Norway	(5) ⁴	5	--	--	5	41	--	--	--	--
Peru	--	--	--	--	--	--	--	--	(5) ⁴	5
Philippines	2 ⁴	21	--	--	2	14	--	--	--	--
Romania	(5)	9	--	--	--	--	--	--	--	--
Singapore	2 ⁴	36	--	--	5 ⁴	32	6	32	--	--
Slovenia	--	--	--	--	37 ⁴	60	--	--	--	--
South Africa	6	129	--	--	--	--	--	--	--	--
Spain	1 ⁴	10	--	--	5	41	--	--	--	--
Sweden	3 ⁴	42	--	--	1	12	--	--	--	--
Switzerland	342 ⁴	8,860	--	--	37	304	--	--	--	--
Taiwan	25	662	--	--	83 ⁴	235	--	--	--	--
Thailand	3 ⁴	39	--	--	4	28	--	--	1 ⁴	88
Turkey	--	--	--	--	(5) ⁴	4	--	--	--	--
United Kingdom	359 ⁴	8,050	1,930	36,000	296 ⁴	1,470	1 ⁴	23	--	--
Vietnam	(5)	4	--	--	--	--	--	--	--	--
Total	2,200	46,000	2,450	40,300	2,540	9,600	60	558	2	249
Year to date	12,400	226,000	17,400	327,000	21,100	96,700	855	7,150	305	6,930

-- Zero.

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

²Unwrought and other forms.

³Gross weight.

⁴All or part of these data have been referred to the U.S. Census Bureau for verification.

⁵Less than 1/2 unit.

Source: U.S. Census Bureau.