

Mineral Industry Surveys

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PLATINUM-GROUP METALS IN APRIL 2009

According to Platts Metals Week, the average April prices of platinum and palladium increased by 8% and 12%, respectively, compared with the average prices in March. Average prices of rhodium and ruthenium increased by 14% and 7%, respectively, in the same time period. The average price of iridium was unchanged. The average monthly prices of platinum, palladium, and rhodium continued their increasing trend that began in October 2008, when prices had reached their lowest point in several years. In the middle of the month, the prices of platinum, palladium, and rhodium reached \$1,243 per troy ounce, \$1,650 per troy ounce, and \$239 per troy ounce, respectively, the highest points since September 2008.

Stillwater Mining Co. (Billings, MT) produced 901 kilograms (kg) of platinum and 2,990 kg of palladium from its mining operations in the first quarter of 2009. These production quantities represented decreases of 22% and 26% for platinum and palladium, respectively, relative to those of the first quarter of 2008. The Stillwater Mine produced 684 kg of platinum and 2,210 kg of palladium, and the East Boulder Mine produced 217 kg of platinum and 778 kg of palladium. Stillwater's recycling volume plummeted by 51% in the first quarter of 2009 relative to that of the same quarter of 2008, as a result of lower metal prices, which led to less recycling. A total of 1,200 kg of platinum, palladium, and rhodium were processed from recycled materials in the first quarter of 2009 (Stillwater Mining Co., 2009).

North American Palladium Ltd. (NAP, Toronto, Ontario, Canada) completed the acquisition of Cadiscor Resources Inc. (Boucherville, Quebec, Canada), a gold exploration company, thus becoming a diversified precious metals producer. NAP's Lac des Iles, Ontario, platinum-group metals (PGMs) mine has been on care and maintenance since October 2008 because of low metal prices, and was expected to be back in production when metal prices recover (Platts Metals Week, 2009). Vale Inco Ltd. (Toronto), which produces PGMs as a byproduct from its nickel mining operations, planned to shut down its mining and processing facilities in Sudbury, Ontario, for 8 weeks starting June 1, in order to trim its nickel production in response to global markets. The shutdown was to follow a previously

planned normal maintenance period at Sudbury during May (Vale Inco Ltd., 2009).

MMC Norilsk Nickel (Moscow, Russia) produced 4,390 kg of platinum and 18,305 kg of palladium in the first quarter of 2009. Production of platinum and palladium was about the same as that of the first quarter of 2008, but dropped by 14% and 15%, respectively, relative to that of the fourth quarter of 2008. The drop was a result of planned cuts in production in response to lower metal prices (MMC Norilsk Nickel, 2009).

Central African Mining & Exploration Co. Plc (CAMEC, London, United Kingdom) continued drilling on its Todal Mining joint-venture Bokai project in Zimbabwe. Preliminary metallurgical test work was completed as well as plans to construct a power line for the project. Completion of a feasibility study was anticipated in May 2009, and the mine was expected to produce 3,700 kilograms per year (kg/yr) of platinum, palladium, rhodium, and gold once in production. Todal Mining is a 40:60 joint venture between the Zimbabwe Mining Development Corp. (Harare, Zimbabwe) and CAMEC (Central African Mining & Exploration Co. Plc, 2009). Both Impala Platinum Holdings Ltd. (Johannesburg, South Africa) and Anglo Platinum Ltd. (Johannesburg) planned to continue current and proposed mining operations in Zimbabwe in spite of changing Government regulations that require foreign ownership of mines be limited to 49% (Johnson Matthey Plc, 2009).

Lonmin plc (London) increased quarterly production and refinanced much of its near-term debt as a result of a restructuring program started last year. Lonmin's refined production in the first quarter of 2009 was 5,760 kg of platinum and 11,270 kg of total PGMs, increases of 45% and 41%, respectively, compared with those of the same quarter of 2008. Aquarius Platinum Ltd. (Bedford, South Africa) produced 3,000 kg of PGMs in the first quarter of 2009, a 26% drop relative to that of the previous quarter, owing to closure of the Everest Mine in South Africa because of geological problems. In spite of lower production, Aquarius returned to profitability in the first quarter because of favorable exchange rates and recovery of metal prices relative to those in the previous quarter (Crust, 2009). Ridge Mining Plc (London) shipped the first ore

concentrate from its Blue Ridge Mine in South Africa to Impala Refining Services. The Blue Ridge Mine was expected to reach full capacity of 3,900 kg/yr of platinum, palladium, rhodium, and gold during the third quarter of 2009, and Impala planned to acquire all production from Blue Ridge (Webb, 2009). Anglo Platinum Ltd. (Johannesburg) produced 12,600 kg of refined platinum from its operations in the first quarter of 2009, a 6% drop relative to that in the same quarter of 2008. Production fell because of the shutdown of furnaces for maintenance. Anglo laid off 4,195 workers, in line with the previously announced reduction of 10,000 employees by the end of 2009 (Anglo Platinum Ltd., 2009).

Legislation was introduced to the Senate which would authorize the U.S. Mint to produce Saint-Gaudens Ultra High Relief bullion coins in palladium. The coins would be 1 ounce and were expected to be attractive to investors because of the lower price relative to platinum. Palladium bullion coins are currently only being minted in Canada (Ganz, 2009).

ETF Securities (London, United Kingdom) filed with the Securities and Exchange Commission to introduce platinum and palladium exchange traded funds (ETFs). The two funds would be listed on the New York Stock Exchange and would be the first platinum and palladium ETFs in the U.S. (CPM Group, 2009).

Researchers from SRI International (Menlo Park, CA) told a correspondent from 60 Minutes that they had found evidence for cold fusion in experiments using palladium and deuterium, and that the creation of a clean nuclear battery may be possible within 20 years. Such a battery could provide power for the lifetime of various items such as laptop computers or automobiles. Experiments on cold fusion using palladium continued at 20 laboratories nationwide (CBS News, 2009).

The Russian Trading System stock exchange (Moscow, Russia) launched trading in platinum and palladium futures

contracts. These contracts can be combined with gold and silver contracts into commodity investment funds (Budrys, 2009).

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TABLE 1
PLATINUM-GROUP METALS PRICES¹

(Dollars per troy ounce)

| | Platinum | Palladium | Rhodium | Iridium | Ruthenium |
|----------------------|------------------|--------------------------|----------------------------|-------------------------------|-----------------------------------|
| 2008: | | | | | |
| Low/date | 760.00 Oct. 27 | 167.00 Dec. 5 | 1,000.00 Nov. ² | 400.00 Dec. ² | 120.00 Dec. ² |
| High/date | 2,275.00 Mar. 4 | 585.00 Mar. 4 | 10,100.00 June 18 | 460.00 Aug. ² | 440.00 Feb. and Mar. ² |
| Average | 1,578.26 | 355.12 | 6,533.57 | 448.34 | 324.60 |
| 2009: | | | | | |
| March: | | | | | |
| Low/date | 1,044.00/18 | 193.00/3 | 1,150.00 ² | 420.00 ² | 80.00 ² |
| High/date | 1,160.00/26 | 223.00/26 | 1,200.00 ² | 420.00 ² | 80.00 ² |
| Average | 1,084.59 | 203.73 | 1,175.00 | 420.00 | 80.00 |
| April: | | | | | |
| Low/date | 1,093.00/28 | 215.00/28 | 1,160.00 ² | 420.00 ² | 80.00 ² |
| High/date | 1,243.00/13 | 239.00/13 | 1,650.00/20 and 21 | 420.00 ² | 95.00 ² |
| Average | 1,169.57 | 228.29 | 1,344.52 | 420.00 | 85.95 |
| Year-to-date: | | | | | |
| Low/date | 920.00 Jan. 15 | 182.00 Jan. ² | 1,050.00 Jan. ² | 420.00 Jan.—Apr. ² | 75.00 Feb. ² |
| High/date | 1,243.00 Apr. 13 | 239.00 Apr. 13 | 1,650.00 Apr. 20 and 21 | 430.00 Jan. ² | 100.00 Jan. 2 |
| Average | 1,060.67 | 207.42 | 1,211.94 | 421.19 | 83.36 |

¹Quotes from Engelhard Industries.

²Occurred multiple days in month(s) 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 | |
|--------------------|----------------------------|-------------|-----------------|-------------|--------------------------|-------------|------------------|-------------|--------------------------|-------------|------------------|-------------|
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| | | (thousands) | | (thousands) | | (thousands) | | (thousands) | | (thousands) | | (thousands) |
| 2008 | 212 | \$7,210 | 45,700 | \$2,330,000 | 4,040 | \$177,000 | 7,180 | \$282,000 | 92,200 | \$593,000 | 734 | \$22,400 |
| 2009: | | | | | | | | | | | | |
| January | 1 | 23 | 3,480 | 106,000 | 302 | 8,460 | 713 | 18,100 | 2,550 | 38,500 | 2 | 48 |
| February | 2 | 39 | 922 | 28,700 | 174 | 4,930 | 403 | 9,820 | 6,340 | 30,100 | 19 | 554 |
| March: | | | | | | | | | | | | |
| Australia | -- | -- | -- | -- | -- | -- | -- | -- | 20 | 668 | 1 | 33 |
| Belgium | -- | -- | 101 | 3,510 | -- | -- | -- | -- | -- | -- | -- | -- |
| Bolivia | -- | -- | -- | -- | -- | -- | -- | -- | 1,230 ² | 45 | -- | -- |
| Brazil | -- | -- | -- | -- | -- | -- | -- | -- | 31 | 468 | -- | -- |
| Canada | (3) | 6 | 1 | 12 | 1 ² | 4 | 8 | 254 | 1,560 ² | 759 | (3) ² | 11 |
| Colombia | -- | -- | -- | -- | 125 | 3,460 | -- | -- | 4 ² | 50 | -- | -- |
| France | -- | -- | -- | -- | -- | -- | -- | -- | 371 ² | 2,540 | -- | -- |
| Germany | -- | -- | -- | -- | 41 ² | 938 | 255 ² | 4,640 | 54 | 1,500 | 1 ² | 8 |
| India | -- | -- | -- | -- | -- | -- | (3) | 12 | -- | -- | -- | -- |
| Indonesia | -- | -- | -- | -- | -- | -- | -- | -- | 5 | 132 | -- | -- |
| Ireland | -- | -- | -- | -- | -- | -- | 1 | 18 | -- | -- | -- | -- |
| Israel | -- | -- | -- | -- | 15 | 408 | -- | -- | 6 | 90 | -- | -- |
| Italy | -- | -- | 126 | 4,350 | -- | -- | 57 | 1,880 | -- | -- | -- | -- |
| Japan | -- | -- | -- | -- | 12 | 450 | 1 | 10 | 48 | 1,280 | -- | -- |
| Korea, Republic of | -- | -- | -- | -- | -- | -- | -- | -- | 14 | 362 | -- | -- |
| Malaysia | -- | -- | -- | -- | -- | -- | -- | -- | 2 | 21 | -- | -- |
| Mexico | -- | -- | -- | -- | -- | -- | -- | -- | 111 | 5,230 | -- | -- |
| Norway | -- | -- | 31 | 1,060 | -- | -- | -- | -- | -- | -- | -- | -- |
| Russia | -- | -- | 51 | 1,690 | 20 | 641 | -- | -- | -- | -- | -- | -- |
| South Africa | -- | -- | 364 | 11,700 | -- | -- | 33 | 929 | -- | -- | -- | -- |
| Switzerland | -- | -- | -- | -- | 110 | 3,770 | 178 | 6,090 | -- | -- | -- | -- |
| Taiwan | -- | -- | -- | -- | -- | -- | -- | -- | 29 | 1,030 | -- | -- |
| United Kingdom | -- | -- | 467 | 16,700 | 1 | 18 | 20 ² | 404 | -- | -- | -- | -- |
| Venezuela | -- | -- | -- | -- | -- | -- | -- | -- | 2,450 ² | 66 | -- | -- |
| Other | -- | -- | -- | -- | (3) | 4 | -- | -- | 6 ² | 135 | -- | -- |
| Total | (3) | 6 | 1,140 | 39,000 | 324 | 9,690 | 554 | 14,200 | 5,940 | 14,400 | 2 | 51 |
| Year to date | 3 | 67 | 5,550 | 174,000 | 800 | 23,100 | 1,670 | 42,100 | 14,800 | 82,900 | 23 | 653 |

-- Zero.

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

²All or part of these data have been referred to the U.S. Census Bureau for verification.

³Less than 1/2 unit.

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 | | Osmium ² | | Ruthenium ² | | Rhodium ² | |
|--------------------|---------------------|----------------------|------------------|----------------------|----------------------|----------------------|---------------------|----------------------|------------------------|----------------------|----------------------|----------------------|
| | Quantity | Value (thousands) | Quantity | Value (thousands) | Quantity | Value (thousands) | Quantity | Value (thousands) | Quantity | Value (thousands) | Quantity | Value (thousands) |
| 2008 | 114,000 | \$1,270,000 | 6,810 | \$85,500 | 2,550 | \$36,600 | 11 | \$101 | 49,800 | \$426,000 | 12,600 | \$2,470,000 |
| 2009: | | | | | | | | | | | | |
| January | 3,560 | 19,900 | 846 | 5,560 | 68 | 963 | -- | -- | 1,300 | 4,100 | 741 | 26,700 |
| February | 3,250 | 21,600 | 1,040 | 7,010 | 111 | 1,300 | -- | -- | 1,690 | 3,460 | 1,090 | 36,200 |
| March: | | | | | | | | | | | | |
| Belgium | 479 | 3,170 | -- | -- | -- | -- | -- | -- | -- | -- | 9 | 323 |
| Canada | 152 | 2,040 | 60 | 709 | -- | -- | -- | -- | -- | -- | -- | -- |
| Germany | -- | -- | 4 ³ | 49 | 1 ³ | 19 | -- | -- | 1,060 | 2,880 | (4) | 22 |
| Italy | 129 | 808 | (4) | 12 | -- | -- | -- | -- | -- | -- | 50 | 1,740 |
| Japan | 75 ³ | 197 | 5 | 83 | -- | -- | -- | -- | 136 | 270 | 4 | 141 |
| Korea, Republic of | 92 | 577 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Norway | 187 | 1,190 | -- | -- | -- | -- | -- | -- | -- | -- | 9 | 347 |
| Russia | 1,020 | 6,550 | 500 | 3,390 | -- | -- | -- | -- | -- | -- | 122 | 4,220 |
| South Africa | 1,230 | 8,010 | 78 | 492 | 102 | 1,240 | -- | -- | 1,190 | 2,090 | 380 | 13,500 |
| Switzerland | -- | -- | 495 | 3,430 | -- | -- | -- | -- | -- | -- | -- | -- |
| United Kingdom | 348 | 2,350 | 37 | 310 | (4) ³ | 4 | -- | -- | 101 | 227 | 96 | 3,440 |
| Total | 3,710 | 24,900 | 1,180 | 8,480 | 103 | 1,260 | -- | -- | 2,490 | 5,470 | 670 | 23,700 |
| Year to date | 10,500 | 66,500 | 3,070 | 21,000 | 281 | 3,520 | -- | -- | 5,480 | 13,000 | 2,500 | 86,600 |

-- Zero.

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

²Unwrought and other forms.

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

⁴Less than ½ unit.

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 | |
|--------------------|-----------------------|-------------------|--------------------------|-------------------|------------------------|-------------------|---|-------------------|----------------------|-------------------|
| | Quantity | Value (thousands) | Quantity | Value (thousands) | Quantity | Value (thousands) | Quantity | Value (thousands) | Quantity | Value (thousands) |
| 2008 | 15,600 | \$570,000 | 54,700 | \$1,190,000 | 26,400 | \$197,000 | 6,450 | \$80,600 | 1,980 | \$302,000 |
| 2009: | | | | | | | | | | |
| January | 1,070 | 30,700 | 3,030 | 43,700 | 4,730 | 29,200 | 188 | 2,290 | 23 | 1,350 |
| February | 2,750 | 81,500 | 1,890 | 33,400 | 1,450 | 10,300 | 94 | 1,600 | 43 | 1,610 |
| March: | | | | | | | | | | |
| Australia | 2 | 86 | -- | -- | 74 ⁴ | 718 | -- | -- | -- | -- |
| Austria | 2 | 46 | -- | -- | 2 | 12 | 19 | 395 | -- | -- |
| Belgium | 2 | 19 | 11 | 391 | 1 | 13 | -- | -- | (5) | 7 |
| Canada | 22 | 540 | 61 ⁴ | 1,830 | 274 | 1,880 | 7 | 104 | (5) | 4 |
| China | 10 | 382 | -- | -- | 405 | 2,310 | 52 | 868 | 39 | 1,490 |
| Colombia | (5) | 3 | -- | -- | 7 | 101 | -- | -- | -- | -- |
| Cyprus | 13 | 443 | -- | -- | -- | -- | -- | -- | -- | -- |
| Denmark | (5) | 4 | -- | -- | 11 | 117 | -- | -- | -- | -- |
| France | 3 ⁴ | 48 | -- | -- | 33 | 242 | -- | -- | -- | -- |
| Germany | 778 | 25,200 | 427 ⁴ | 2,650 | 148 | 1,360 | 4 | 94 | 3 | 109 |
| Hong Kong | 5 ⁴ | 678 | -- | -- | 141 | 1,340 | -- | -- | -- | -- |
| India | 5 | 193 | -- | -- | 16 ⁴ | 55 | 1 | 20 | -- | -- |
| Ireland | 14 | 448 | -- | -- | 15 ⁴ | 25 | 2 | 13 | -- | -- |
| Israel | 3 | 67 | -- | -- | 48 ⁴ | 136 | -- | -- | -- | -- |
| Italy | (5) | 75 | -- | -- | 262 | 2,180 | -- | -- | 3 | 118 |
| Japan | 439 | 14,500 | 38 | 899 | 448 | 3,070 | 34 | 301 | 25 | 1,060 |
| Korea, Republic of | 7 | 181 | -- | -- | 47 | 268 | -- | -- | (5) | 5 |
| Kuwait | (5) | 4 | -- | -- | 11 | 164 | -- | -- | -- | -- |
| Mexico | 4 | 141 | -- | -- | 5 | 40 | 28 ⁴ | 801 | (5) | 6 |
| Norway | (5) | 20 | -- | -- | 14 | 248 | -- | -- | -- | -- |
| Singapore | (5) | 12 | -- | -- | 5 | 41 | 10 | 246 | -- | -- |
| Switzerland | 262 | 8,090 | 323 ⁴ | 3,000 | 24 | 302 | -- | -- | -- | -- |
| Taiwan | 5 | 71 | -- | -- | 29 | 168 | (5) | 5 | -- | -- |
| Thailand | (5) | 94 | -- | -- | 16 | 113 | -- | -- | -- | -- |
| United Kingdom | 52 | 1,480 | 1,750 | 32,500 | 108 ⁴ | 813 | 2 ⁴ | 73 | -- | -- |
| Other | 11 ⁴ | 268 | 1 | 30 | 116 ⁴ | 463 | 2 ⁴ | 16 | -- | -- |
| Total | 1,640 | 53,100 | 2,610 | 41,300 | 2,260 | 16,200 | 161 | 2,940 | 70 | 2,800 |
| Year to date | 5,460 | 165,000 | 7,530 | 118,000 | 8,430 | 55,700 | 444 | 6,830 | 136 | 5,770 |

-- 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 ½ unit.

Source: U.S. Census Bureau.