

Mineral Industry Surveys

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ANTIMONY IN THE THIRD QUARTER 2003

The New York dealer price of antimony metal, published by Platts Metals Week, started the quarter at a \$1.01 per-pound average for July, then dropped to a \$0.96-per-pound average for August, before closing the quarter at a \$0.98-per-pound average for September.

In Canada, VVC Exploration Corp. (Toronto, Ontario) announced that it entered an agreement with Roycefield Resources Ltd. to acquire all assets of the shuttered Beaver Brook antimony mine in Gander, Newfoundland, for \$13 million. According to VVC, the mine could be operating again in the first half of 2004. The mine has one of the world's largest undeveloped antimony deposits. In full production, the mine could supply about 5% of the world's annual antimony demand, and it would be the only operating antimony mine in North America. Neighboring U.S. markets are the world's largest consumers of antimony. The mine is located in central Newfoundland, about 37 miles southwest of Gander. It is accessible via an upgraded, all-weather road from the TransCanadian highway and is serviced by a 66-kilovolt power line. With the acquisition, VVC will expand from an exploration company to that of a full-fledged production entity. VVC expects to generate significant cash flow from the mine as early as its first year of operation. The Beaver Brook antimony project was developed between 1994-98.

Antimony was discovered in mineralized zones outlined through approximately 25,000 meters (m) of drilling which developed a resource estimated to be more than 1,900,000 metric tons (t) grading 4.32% antimony. In 1998, a 450-metric-ton-per-day mill was erected. Mine development included a 515-m, 16-degree production decline and 313 m of drifts. Total development costs were \$22 million. After a short period of test operations that processed 20,000 t of material grading 5% antimony, the operation was suspended in 1998, and the mine was placed on care and maintenance due to adverse antimony market conditions. The Beaver Brook Mine has been idle since its operations were suspended in 1999. VVC noted that the mill and office facilities are generally in the same condition as at the time production was suspended. VVC claims that the condition of the facilities and the status of the mine lease and mining permits will allow for a restart of production within about 6

months of the decision to begin operations. VVC indicates that the cost to rehabilitate the surface facilities will be about \$1.4 million and that an extra \$1.3 million in underground development is required to restart production (Metal-Pages, 2003a¹).

In Krygyzstan, the government announced a reduction in the antimony mineral resource tax from 5% to 2%, bringing it in line with that of other metallic ores. This reduction was seen as a boost for the struggling Kadamjai antimony smelter, which has been under financial pressure and has had difficulty in sourcing antimony concentrates. Kadamjai normally gets its feed from Russia and Tajikistan. However, since the closure of several antimony mines in China, Chinese antimony smelters have been competing with Kadamjai to buy concentrates. The Kyrgyz Government indicated that it hopes the additional funds made available by the tax cut will be used to locate and develop new sources of antimony, as well as expand existing production (Mining Journal, 2003).

In China, Liuzhou Tin Group shut its two antimony plants in Guangxi's Hechi City in early September due to a concentrate shortage. The two antimony plants, which have a combined capacity of 20,000 tons per year, had planned to produce 12,000 t in 2003 (Platts Metals Week, 2003b).

China's total refined antimony output for 2003 is expected to be about 10% less than the previous estimate of 100,000 t, due to a lack of concentrate. China's antimony output during January-June 2003 was 61,000 t, down 14% from the same period of 2002. Only five of more than 60 antimony mines in Guangxi's Nandan area are currently operating (Platts Metals Week, 2003a).

In Peru, nonferrous metals miner Doe Run Peru announced that it intends to boost the output of its byproduct metals—antimony and bismuth—to compensate for a reduction in revenue from its primary metals (copper, lead, silver, and zinc). The company plans to produce 700 t of antimony this fiscal year, an increase of 122% from the same period of 2002; it aims to produce 840 t in 2004 (Metal-Pages, 2003b[§]).

¹References that include a section mark (§) are found in the Internet References Cited section.

References Cited

Mining Journal, 2003, Minor metals in July: Mining Journal, v. 341, no. 8748, August 8, p. 96.
Platts Metals Week, 2003a, Chinese antimony prices steady at \$2,200-\$2,300/mt: Platts Metals Week v. 74, no. 36, September 8, p. 12.
Platts Metals Week, 2003b, Concs shortage shuts Liuzhou's Sb plants: Platts Metals Week, v. 74, no. 37, September 15, p. 14.

Internet References Cited

Metal-Pages, 2003a (September 9) Beaver Brook antimony mine could be operating next year, accessed September 16, 2003, at URL <http://www.metal-pages.com>.
Metal-Pages, 2003b (August 8), Doe Run Peru to boost bismuth and antimony production, accessed September 16, 2003, at URL <http://www.metal-pages.com>

TABLE 1
SALIENT ANTIMONY STATISTICS ¹

(Metric tons, antimony content, unless otherwise specified)

| | 2002 | 2003 | | |
|---|--------|--------------------|--------------------|--------------------|
| | | First quarter | Second quarter | Third quarter |
| Production: | | | | |
| Primary smelter ² | W | W | W | W |
| Secondary | 5,350 | 1,150 | 974 | 1,100 |
| Imports for consumption: | 28,500 | 7,780 | 8,050 ^r | 4,180 ³ |
| Ore and concentrate | 1,310 | 149 | 98 ^r | 106 ³ |
| Metal | 4,050 | 1,620 | 1,430 ^r | 842 ³ |
| Oxide ⁴ | 23,200 | 6,010 | 6,530 ^r | 3,230 ³ |
| Exports: | 4,960 | 1,130 | 924 ^r | 765 ³ |
| Metal, alloys, and scrap (gross weight) | 1,030 | 69 ^r | 154 ^r | 213 ³ |
| Oxide ⁴ | 3,930 | 1,060 | 769 ^r | 552 ³ |
| Consumption of primary antimony | 12,900 | 3,110 ^r | 2,750 ^r | 2,980 |
| Price: Average cents per pound ⁵ | 88.39 | 119.82 | 119.58 | 98.48 |
| Stocks, end of period ⁶ | 5,050 | 5,630 ^r | 3,930 ^r | 3,900 |

^rRevised. W Withheld to avoid disclosing company proprietary data.

¹Data are rounded to no more than three significant digits, except prices.

²Nearly all primary smelter output is antimony trioxide.

³Data for July and August only.

⁴Antimony content is calculated by the U.S. Geological Survey.

⁵New York dealer price for 99.5% to 99.6% metal, c.i.f. U.S. ports.

⁶Producer and consumer stocks.

TABLE 2
INDUSTRY STOCKS OF PRIMARY ANTIMONY IN THE UNITED STATES ¹

(Metric tons, antimony content)

| Class of material | 2003 ² | | |
|--------------------|--------------------|--------------------|---------------|
| | First quarter | Second quarter | Third quarter |
| Metal | 726 ^r | 627 ^r | 660 |
| Oxide | 4,650 | 3,050 ^r | 2,990 |
| Other ³ | 247 ^r | 250 ^r | 250 |
| Total | 5,630 ^r | 3,930 ^r | 3,900 |

^rRevised.

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

²Estimated 100% coverage based on reports from respondents who held 78% of the total stocks of antimony at the end of 2002.

³Includes ore and concentrate, sulfide, and residues.

TABLE 3
INDUSTRIAL CONSUMPTION OF PRIMARY ANTIMONY ¹

(Metric tons, antimony content)

| Class of material consumed | 2002 | 2003 ² | | |
|----------------------------|--------|--------------------|--------------------|---------------|
| | | First quarter | Second quarter | Third quarter |
| Metal | W | W | W | W |
| Oxide | 11,000 | 2,490 | 2,340 ^r | 2,380 |
| Other ³ | 1,860 | 617 ^r | 413 ^r | 592 |
| Total | 12,900 | 3,110 ^r | 2,750 ^r | 2,980 |

^rRevised. W Withheld to avoid disclosing company proprietary data; included with "Other."

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

²Estimated 100% coverage based on reports from respondents who consumed 23% of the total antimony in 2002.

³Includes ores and concentrates, sulfide and residues and item indicated by symbol W.

TABLE 4
REPORTED CONSUMPTION OF PRIMARY ANTIMONY, BY CLASS OF
MATERIAL PRODUCED¹

(Metric tons, antimony content)

| Product | 2002 | 2003 ² | | |
|-----------------------------|--------|--------------------|--------------------|---------------|
| | | First quarter | Second quarter | Third quarter |
| Metal: | | | | |
| Bearing metals and bearings | W | W | W | W |
| Other ³ | 2,780 | 918 ^r | 648 ^r | 909 |
| Total | 2,780 | 918 ^r | 648 ^r | 909 |
| Nonmetal: | | | | |
| Ceramics and glass | W | W | W | W |
| Plastics | W | W | W | W |
| Other ⁴ | 2,710 | 790 ^r | 853 ^r | 842 |
| Total | 2,710 | 790 ^r | 853 ^r | 842 |
| Flame-retardants: | | | | |
| Plastics | 6,050 | 538 ^r | 486 ^r | 484 |
| Other ⁵ | 1,360 | 858 ^r | 766 ^r | 740 |
| Total | 7,410 | 1,400 ^r | 1,250 ^r | 1,230 |
| Grand total | 12,900 | 3,110 ^r | 2,750 ^r | 2,980 |

¹Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Estimated 100% coverage based on reports from respondents who consumed 23% of the total antimony in 2002.

⁴Includes ammunition, antimonial lead, bearing metals and bearings, cable coverings, castings, sheet and pipe, and solder.

⁵Includes ammunition primers, pigments, ceramics and glass, and plastics.

⁶Includes adhesives, pigments, rubber, and textiles.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF ANTIMONY, BY CLASS AND COUNTRY¹

(Metric tons, antimony content)

| Class and country | 2002 | 2003 | | | | | |
|---|--------|---------------|----------------|-------|-------|--------|-----------------------------|
| | | First quarter | Second quarter | June | July | August | January-August ² |
| Ore and concentrate: | | | | | | | |
| China | 715 | 96 | 98 | 59 | 77 | 20 | 291 |
| Other | 597 | 53 | -- | -- | 9 | -- | 62 |
| Total | 1,310 | 149 | 98 | 59 | 86 | 20 | 353 |
| Metal: | | | | | | | |
| China | 2,590 | 1,380 | 950 | 659 | 435 | 124 | 2,890 |
| Hong Kong | 92 | -- | 21 | -- | -- | -- | 21 |
| Mexico | 880 | 38 | 256 | 99 | -- | 185 | 479 |
| Peru | 285 | 91 | 123 | -- | 38 | 34 | 286 |
| Other | 197 | 110 | 79 | 7 | 17 | 10 | 216 |
| Total | 4,050 | 1,620 | 1,430 | 765 | 489 | 353 | 3,890 |
| Oxide: | | | | | | | |
| Belgium | 3,060 | 647 | 759 | 229 | 270 | 45 | 1,720 |
| China | 8,430 | 2,370 | 2,940 | 903 | 694 | 315 | 6,320 |
| Hong Kong | 798 | 413 | 415 | 133 | 150 | 116 | 1,100 |
| Mexico | 8,110 | 2,110 | 1,550 | 608 | 559 | 600 | 4,820 |
| South Africa | 2,620 | 395 | 805 | 403 | 81 | 375 | 1,660 |
| Other | 178 | 76 | 62 | 8 | 6 | 19 | 164 |
| Total | 23,200 | 6,010 | 6,530 | 2,280 | 1,760 | 1,470 | 15,800 |
| Grand total | 28,500 | 7,780 | 8,050 | 3,110 | 2,340 | 1,840 | 20,000 |
| Other antimony compounds (gross weight) | 101 | 1 | 22 | -- | 11 | 12 | 46 |

-- Zero.

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

²Includes revisions to prior months' data.

Source: U.S. Census Bureau. Antimony content is calculated by the U.S. Geological Survey.