

Mineral Industry Surveys

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MOLYBDENUM IN DECEMBER 2009

Domestic production of molybdenum (Mo) in concentrate in December 2009 was slightly less than that of the previous month and about 16% less than revised December 2008 production, according to the U.S. Geological Survey. Revised producer stocks of molybdenum in concentrate, oxide, and other product forms were about 5,370 metric tons (t) at the beginning of 2009 and about 6,070 t at the end of December 2009.

According to Ryan's Notes (2010), the December monthly average price range for U.S. ferromolybdenum (FeMo) was from \$12.738 to \$13.150 per pound of molybdenum content, compared with \$12.686 to \$13.500 in November. European FeMo monthly averages ranged from \$27.138 to \$27.788 per kilogram (kg) of molybdenum content in December compared with \$26.714 to \$27.714 per kg in November. In December, worldwide molybdenum oxide (MoO₃) prices ranged from

\$11.350 to \$11.581 per pound compared with \$11.057 to \$11.429 per pound in November.

Included in this Mineral Industry Surveys are U.S. production and shipments of molybdenum concentrates and materials, U.S. consumption by end use, and consumer stocks of molybdenum material in November and December 2009. Export data for October and November 2009 and import data for November 2009 are also included.

Reference Cited

Ryan's Notes, 2010, [untitled]: Ryan's Notes, v. 15, no. 1, January 5, p. 10.

TABLE 1
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS¹

(Metric tons, contained molybdenum)

| | 2008 | 2009 | | |
|-------------------------|----------------------|----------|----------|----------------------|
| | January- December | November | December | January- December |
| Production | 57,000 | 3,760 | 3,700 | 47,700 |
| Shipments: ² | | | | |
| Domestic | 35,000 | 1,010 | 880 | 12,200 |
| Export | 12,900 | 1,210 | 1,220 | 12,800 |

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

²As reported by producers.

TABLE 2
U.S. REPORTED PRODUCTION AND SHIPMENTS OF MOLYBDENUM
PRODUCTS¹

(Metric tons, contained molybdenum)

| | 2008 | 2009 | | |
|-----------------------------------|----------------------|-----------------------|----------|----------------------|
| | January- December | November ^f | December | January- December |
| Gross production | 72,900 | 5,220 | 4,940 | 59,900 |
| Internal consumption ² | 39,700 | 2,390 | 2,060 | 26,200 |
| Gross shipments | 51,300 | 3,280 | 3,690 | 43,300 |

^fRevised.

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

²Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

TABLE 3
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS¹

(Kilograms, contained molybdenum)

| End use | Molybdc oxides | Ferro molyb- denum ² | Ammonium and sodium molybdate | Molyb- denum scrap | Other | Total |
|--|-------------------|---------------------------------------|-------------------------------------|--------------------------|---------|-----------|
| 2009, November: | | | | | | |
| Steel: | | | | | | |
| Carbon | 32,400 | W | -- | -- | W | 32,400 |
| High-strength low-alloy | 41,200 | 8,000 | -- | -- | 11,300 | 60,500 |
| Stainless and heat-resisting | 169,000 | 63,500 | -- | W | 6,510 | 239,000 |
| Full alloy | 244,000 | 190,000 | -- | -- | 1,510 | 436,000 |
| Tool | W | W | -- | -- | -- | W |
| Total | 487,000 | 262,000 | -- | W | 19,400 | 768,000 |
| Cast irons (gray, malleable, and ductile iron) | W | 22,200 | -- | -- | 763 | 23,000 |
| Superalloys | 37,500 | W | -- | W | 76,700 | 114,000 |
| Alloys: (other than steels, cast irons, and superalloys) | | | | | | |
| Welding materials (structural and hard-facing) | -- | W | -- | -- | 6 | 6 |
| Other alloys | 176 | 1,450 | -- | -- | -- | 1,620 |
| Mill products made from metal powder ³ | 6,660 | -- | -- | -- | 172,000 | 179,000 |
| Cemented carbides and related products ⁴ | -- | -- | -- | -- | W | W |
| Chemical and ceramic uses: | | | | | | |
| Pigments | -- | -- | W | -- | -- | W |
| Catalysts | 77,300 | -- | W | -- | W | 77,300 |
| Other chemicals | -- | -- | -- | -- | 214 | 214 |
| Miscellaneous and unspecified uses: | | | | | | |
| Lubricants | -- | -- | -- | -- | 10,800 | 10,800 |
| Other | 66,700 | 26,000 | 72,600 | 47,900 | 16,800 | 230,000 |
| Grand total | 675,000 | 312,000 | 72,600 | 47,900 | 297,000 | 1,400,000 |
| Stocks, November 30, 2009 | 307,000 | 293,000 | 2,070 | 38,400 | 851,000 | 1,490,000 |
| 2009, December: | | | | | | |
| Steel: | | | | | | |
| Carbon | 34,200 | W | -- | -- | W | 34,200 |
| High-strength low-alloy | 41,200 | 8,000 | -- | -- | 11,300 | 60,500 |
| Stainless and heat-resisting | 156,000 | 63,000 | -- | W | 6,510 | 225,000 |
| Full alloy | 245,000 | 193,000 | -- | -- | 1,510 | 440,000 |
| Tool | W | W | -- | -- | -- | W |
| Total | 476,000 | 264,000 | -- | W | 19,400 | 760,000 |
| Cast irons (gray, malleable, and ductile iron) | W | 22,200 | -- | -- | 763 | 23,000 |
| Superalloys | 24,000 | W | -- | W | 73,100 | 97,100 |
| Alloys: (other than steels, cast irons, and superalloys) | | | | | | |
| Welding materials (structural and hard-facing) | -- | W | -- | -- | 6 | 6 |
| Other alloys | 70 | 2,190 | -- | -- | -- | 2,260 |
| Mill products made from metal powder ³ | 1,330 | -- | -- | -- | 172,000 | 174,000 |
| Cemented carbides and related products ⁴ | -- | -- | -- | -- | W | W |
| Chemical and ceramic uses: | | | | | | |
| Pigments | -- | -- | W | -- | -- | W |
| Catalysts | 77,300 | -- | W | -- | W | 77,300 |
| Other chemicals | -- | -- | -- | -- | 214 | 214 |
| Miscellaneous and unspecified uses: | | | | | | |
| Lubricants | -- | -- | -- | -- | 10,800 | 10,800 |
| Other | 66,900 | 27,000 | 72,600 | 65,200 | 16,800 | 248,000 |
| Grand total | 645,000 | 316,000 | 72,600 | 65,200 | 293,000 | 1,390,000 |
| Stocks, December 31, 2009 | 325,000 | 282,000 | 1,960 | 18,400 | 850,000 | 1,480,000 |

W Withheld to avoid disclosing company proprietary data; included in "Other" of the "Miscellaneous and unspecified uses" category. -- Zero.

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

²Includes calcium molybdate.

³Includes ingot, wire, rod, and sheet.

⁴Includes construction, mining, oil and gas, metalworking machinery.

TABLE 4
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES
(including roasted concentrate), BY COUNTRY¹

(Kilograms, contained molybdenum)

| Country | 2008 | | | 2009 | | |
|----------------------|----------------------|-----------|----------------------|-----------|-----------|----------------------|
| | January- December | November | January- November | October | November | January- November |
| Argentina | 210,000 | 19,000 | 191,000 | -- | -- | -- |
| Austria | 1,090 | -- | 1,090 | -- | -- | -- |
| Belgium | 6,910,000 | 330,000 | 6,530,000 | 641,000 | 791,000 | 6,310,000 |
| Brazil | 9,700 | -- | 9,700 | -- | -- | 49,100 |
| Canada | 2,030,000 | 38,500 | 1,980,000 | 122,000 | 75,900 | 1,030,000 |
| Chile | 316,000 | -- | 316,000 | -- | -- | 212,000 |
| China | 365,000 | -- | 242,000 | 543,000 | 910,000 | 6,120,000 |
| India | 32,700 | -- | 32,700 | -- | -- | 139,000 |
| Italy | 12,000 | -- | 12,000 | -- | -- | -- |
| Japan | 2,220,000 | 238,000 | 1,970,000 | 78,500 | 75,700 | 802,000 |
| Kenya | -- | -- | -- | -- | -- | 23,200 |
| Korea, Republic of | 694,000 | 32,800 | 642,000 | 53,600 | 107,000 | 839,000 |
| Latvia | 20,000 | -- | 20,000 | -- | -- | -- |
| Mexico | 4,470,000 | 339,000 | 4,070,000 | -- | 388,000 | 2,510,000 |
| Netherlands | 9,960,000 | 758,000 | 9,140,000 | 340,000 | 229,000 | 5,930,000 |
| Netherlands Antilles | 10,500 | -- | 10,500 | -- | -- | -- |
| Niger | 17,400 | -- | 17,400 | -- | -- | -- |
| South Africa | 11,400 | -- | -- | 59,600 | -- | 431,000 |
| Spain | 1,270 | -- | 1,270 | -- | -- | -- |
| Sweden | -- | -- | -- | -- | -- | 1,140 |
| Taiwan | -- | -- | -- | -- | -- | 20,000 |
| Thailand | -- | -- | -- | -- | -- | 9,620 |
| United Arab Emirates | -- | -- | -- | -- | -- | 5,910 |
| United Kingdom | 5,080,000 | 495,000 | 4,600,000 | 85,600 | 10,500 | 2,210,000 |
| Venezuela | 1,520 | -- | 1,520 | -- | -- | 1,580 |
| Vietnam | 341,000 | 5,290 | 331,000 | 5,010 | -- | 205,000 |
| Other ² | 567 | -- | -- | -- | -- | 159 |
| Total | 32,700,000 | 2,260,000 | 30,100,000 | 1,930,000 | 2,590,000 | 26,900,000 |

-- Zero.

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

²Includes countries with year-to-date or full year quantities of less than 1,000 kilograms.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY¹

(Kilograms, contained molybdenum)

| Country | 2008 | | | 2009 | | |
|----------------------|----------------------|----------|----------------------|---------|----------|----------------------|
| | January- December | November | January- November | October | November | January- November |
| Argentina | -- | -- | -- | -- | -- | 13,200 |
| Australia | 174 | -- | 174 | -- | -- | -- |
| Belgium | -- | -- | -- | -- | -- | 13,500 |
| Canada | 933,000 | 18,600 | 919,000 | 77,100 | 80,600 | 540,000 |
| China | -- | -- | -- | -- | -- | 25,300 |
| Colombia | 1,090 | 904 | 1,090 | -- | -- | 1,280 |
| Denmark | 454 | -- | 454 | 200 | -- | 200 |
| India | 1,150 | -- | 1,150 | -- | -- | 65,300 |
| Israel | -- | -- | -- | -- | -- | 95 |
| Korea, Republic of | 14,000 | -- | 14,000 | -- | -- | 26,800 |
| Mexico | 58,600 | 6,610 | 48,400 | 16,200 | 525 | 52,900 |
| Netherlands | 280,000 | 70,100 | 280,000 | -- | -- | 24,000 |
| Peru | -- | -- | -- | -- | -- | 3,180 |
| Philippines | 700 | -- | 700 | -- | -- | 1,210 |
| South Africa | 68 | -- | 68 | -- | -- | -- |
| Taiwan | -- | -- | -- | -- | -- | 12,500 |
| United Arab Emirates | -- | -- | -- | -- | -- | 3,260 |
| Total | 1,290,000 | 96,200 | 1,260,000 | 93,500 | 81,100 | 783,000 |

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS¹

(Kilograms, unless otherwise specified)

| Material | January-December 2008 | | | November 2009 | | | January-November 2009 | | |
|------------------------------|-----------------------|----------------------|--------------------------------|---------------|----------------------|--------------------------------|-----------------------|----------------------|--------------------------------|
| | Gross weight | Contained molybdenum | Value ² (thousands) | Gross weight | Contained molybdenum | Value ² (thousands) | Gross weight | Contained molybdenum | Value ² (thousands) |
| Ore and concentrates roasted | 9,950,000 | 6,060,000 | \$249,000 | 725,000 | 443,000 | \$13,600 | 7,400,000 | 4,570,000 | \$87,700 |
| Ore and concentrates other | 9,140,000 | 4,170,000 | 263,000 | 413,000 | 211,000 | 4,500 | 5,220,000 | 2,530,000 | 50,200 |
| Molybdenum chemicals: | | | | | | | | | |
| Oxides and hydroxides | 335,000 | NA | 12,900 | 1,720 | NA | 42 | 207,000 | NA | 3,290 |
| Molybdates of ammonium | 360,000 | 203,000 | 14,100 | -- | -- | -- | 1,070,000 | 602,000 | 18,300 |
| Molybdates (all others) | 91,600 | 31,500 | 1,180 | 2,030 | 1,220 | 61 | 25,100 | 12,200 | 905 |
| Molybdenum orange | 373,000 | NA | 3,110 | 32,300 | NA | 263 | 257,000 | NA | 2,090 |
| Ferromolybdenum | 3,460,000 | 2,320,000 | 166,000 | 254,000 | 171,000 | 5,060 | 2,720,000 | 1,810,000 | 44,700 |
| Molybdenum powders | 76,000 | 64,100 | 7,070 | 12,000 | 9,240 | 495 | 36,800 | 30,000 | 2,020 |
| Molybdenum unwrought | 256,000 | 255,000 | 15,800 | 20,000 | 20,000 | 483 | 107,000 | 97,600 | 2,870 |
| Molybdenum waste and scrap | 588,000 | 546,000 | 30,900 | 12,400 | 12,200 | 427 | 421,000 | 415,000 | 13,200 |
| Molybdenum wire | 19,800 | NA | 3,060 | 2,010 | NA | 266 | 13,700 | NA | 1,870 |
| Molybdenum other | 483,000 | NA | 48,700 | 33,600 | NA | 2,140 | 266,000 | NA | 17,400 |
| Total | 25,100,000 | XX | 814,000 | 1,510,000 | XX | 27,300 | 17,700,000 | XX | 244,000 |

NA Not available. XX Not applicable. -- Zero.

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

²Customs value.

Source: U.S. Census Bureau.