

Mineral Industry Surveys

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MOLYBDENUM IN DECEMBER 2003

Domestic production of molybdenum in concentrate in December 2003 was about 18% more than that of the previous month and was about 5% more than that of December 2002, according to the U.S. Geological Survey. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 8,250 metric tons (t) at the beginning of 2003, and 4,630 t at the end of December.

Domestic production of molybdenum in concentrate in 2003 was about 3% (1,100 t) more than that of the previous year. U.S. consumption of molybdenum products in 2003 was about 16% (8,900 t) more than that of the previous year.

According to Ryan's Notes (2004), the December monthly averages for U.S. ferromolybdenum prices ranged from \$7.663 to \$7.925 per pound of molybdenum content, compared with \$7.014 to \$7.214 in November. European ferromolybdenum monthly averages ranged from \$17.625 to \$17.998 per kilogram of molybdenum content in December as compared to \$14.871 to \$15.129 in November. In December, worldwide molybdenum oxide prices ranged from \$6.888 to \$7.306 per pound versus \$5.893 to \$6.064 in November.

Supply-side pressures in China, Russia, and the Americas drove molybdenum prices higher in December. Winter weather caused the closure of many mines, and the failure of a tailings pond in Liaoning Province, China, led the Government to close all ore dressing plants. Since Liaoning Province accounts for 30% of primary molybdenum concentrate production in China,

this affected roasters and converters downstream. In addition, Chinese processing plants that rely of concentrate imports from Russia were hit by a *force majeure* at the Sorsk molybdenum plant in Russia, which normally exports half of its 3,000 t (6-7 million pound) annual production to Chinese consumers (Metal Bulletin Research, 2003).

For the year of 2003, the calculated U.S. average price (based on Platts Metals Week prices) was \$5.358 per pound of molybdenum content for dealer molybdenum oxide, compared with \$3.751 in 2002. The U.S. average price was \$5.946 for ferromolybdenum, compared with \$4.894 in 2002. Prices for both commodities rose steadily throughout the year owing to growth in demand and a slight supply deficit.

Included in this Mineral Industry Surveys are U.S. production and shipments of molybdenum concentrates and materials, plus U.S. consumption, by end use, and stocks of molybdenum material in November and December 2003; also included are trade data for October and November 2003.

References Cited

- Metal Bulletin Research, 2003, Molybdenum highlights, why are prices defying earlier expectations: Metal Bulletin Research, Ferro-alloys Monthly, no. 136, December 27, p. 13.
Ryan's Notes, 2004, [untitled]: Ryan's Notes, v. 10, no. 1, January 5, p. 4.

TABLE 1
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS¹

(Metric tons, contained molybdenum)

	2002	2003		Year to date
	January-December	November	December	
Production	32,600 [†]	2,420	2,860	33,700
Shipments: ²				
Domestic	21,200	629	914	12,200
Export	11,100	1,720	2,130	21,600

[†]Revised.

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

²As reported by producers.

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

(Metric tons, contained molybdenum)

	2002	2003		Year to date
	January-December	November	December	
Gross production	31,300	4,260	4,480	41,400
Internal consumption ²	20,700	2,800	2,900	29,600
Gross shipments	27,500	2,590	3,360	31,600

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

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
2003, November:						
Steel:						
Carbon	12,000 ^r	W	--	--	W	12,000 ^r
High-strength low-alloy	27,400 ^r	8,190 ^r	--	--	--	35,500 ^r
Stainless and heat-resisting	147,000 ^r	59,500 ^r	--	--	7,180	214,000 ^r
Full alloy	99,100 ^r	165,000	--	--	1,860	266,000 ^r
Tool	58,300	W	--	--	W	58,300
Total	344,000 ^r	233,000 ^r	--	--	9,040	586,000 ^r
Cast irons (gray, malleable, and ductile iron)	W	8,200 ^r	--	--	763	8,960 ^r
Superalloys	42,400	W	--	(3)	85,700	128,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	215	4,490 ^r	--	--	2,610	7,310 ^r
Mill products made from metal powder ⁴	--	--	--	--	66,800	66,800
Cemented carbides and related products ⁵	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	1,780 ^r	1,780 ^r
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	18,500	18,500
Other	1,090	31,800	76,100	--	17,400	126,000
Grand total	465,000 ^r	277,000 ^r	76,100	--	203,000 ^r	1,020,000 ^r
Stocks, November 30, 2003	365,000 ^r	178,000 ^r	5,240	29,900	864,000 ^r	1,440,000 ^r
2003, December:						
Steel:						
Carbon	10,300	W	--	--	W	10,300
High-strength low-alloy	33,700	8,230	--	--	--	41,900
Stainless and heat-resisting	192,000	27,900	--	--	7,180	227,000
Full alloy	107,000	165,000	--	--	1,860	274,000
Tool	55,800	W	--	--	W	55,800
Total	399,000	201,000	--	--	9,040	609,000
Cast irons (gray, malleable, and ductile iron)	W	14,200	--	--	763	15,000
Superalloys	68,700	W	--	(3)	96,100	165,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	177	3,560	--	--	2,610	6,350
Mill products made from metal powder ⁴	--	--	--	--	79,100	79,100
Cemented carbides and related products ⁵	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	936	936
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	18,800	18,800
Other	1,090	36,700	74,900	--	17,400	130,000
Grand total	546,000	255,000	74,900	--	225,000	1,100,000
Stocks, December 31, 2003	403,000	189,000	4,870	45,800	850,000	1,490,000

^rRevised. 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.

³Included in "Other" of the "Superalloys" category.

⁴Includes ingot, wire, rod, and sheet.

⁵Includes construction, mining, oil and gas, metal working machinery.

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

(Kilograms, contained molybdenum)

Country	2002	2003		Year to date
	January-December	October	November	
Australia	46,900	19,100	3,540	99,500
Belgium	4,380,000	420,000	222,000	2,950,000
Brazil	32,600	1,980	5,190	42,300
Canada	1,080,000	20,200	32,600	880,000
Chile	16,200	--	1,210	15,500
China	56,700	59,500	--	63,100
Germany	64,400	--	--	1,440
India	141,000	--	376	11,900
Italy	47,900	--	--	15,200
Japan	1,130,000	201,000	144,000	1,870,000
Korea, Republic of	70,600	3,290	856	59,500
Mexico	484,000	162,000	168,000	3,690,000
Netherlands	7,330,000	1,470,000	840,000	10,500,000
Spain	41,200	--	--	4,130
Sweden	35,000	--	--	25,700
Taiwan	12,600	--	--	9,590
United Kingdom	4,330,000	688,000	880,000	7,320,000
Other	153,000	11,900	26,800	140,000
Total	19,500,000	3,050,000	2,330,000	27,700,000

-- Zero.

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

Source: U.S. Census Bureau.

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

(Kilograms, contained molybdenum)

Country	2002	2003		Year to date
	January-December	October	November	
Australia	--	--	327	873
Canada	597,000	43,800	65,400	483,000
Chile	240	--	--	--
Denmark	5,110	--	--	241
Japan	--	--	--	61
Mexico	51,400	10,300	10,900	43,100
Netherlands	--	--	--	25,500
Switzerland	21,800	--	--	--
Taiwan	274	--	--	--
Total	676,000	54,100	76,600	553,000

-- 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 2002			November 2003		
	Gross weight	Contained molybdenum	Value (c.i.f.) (thousands)	Gross weight	Contained molybdenum	Value (c.i.f.) (thousands)
Ore and concentrates roasted	7,030,000	4,370,000	\$33,500	611,000	389,000	\$5,010
Ore and concentrates other	664,000	340,000	3,450	165,000	75,400	967
Molybdenum chemicals:						
Oxides and hydroxides	1,200,000	NA	7,660	119,000	NA	878
Molydates of ammonium	1,740,000	1,010,000	11,200	167,000	93,700	1,330
Molydates (all others)	435,000	88,600	1,630	23,500	19,200	163
Molybdenum orange	1,300,000	NA	5,490	95,500	NA	415
Ferromolybdenum	5,570,000	3,590,000	31,400	127,000	79,800	1,040
Molybdenum powders	39,500	31,700	1,110	4,240	2,510	175
Molybdenum unwrought	43,500	43,200	542	5,410	5,410	84
Molybdenum waste and scrap	697,000	617,000	6,910	20,000	12,500	199
Molybdenum wire	14,600	NA	697	547	NA	47
Molybdenum other	84,800	NA	7,240	11,500	NA	829
Total	18,800,000	10,100,000	111,000	1,350,000	677,000	11,100

NA Not available.

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

Source: U.S. Census Bureau.