

# Mineral Industry Surveys

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## MOLYBDENUM IN JANUARY 2005

Domestic production of molybdenum in concentrate in January 2005 was about 5% less than that of the previous month and was about 23% more than that of January 2004, according to the U.S. Geological Survey. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 5,930 metric tons (t) at the beginning of 2005 and 6,390 t at the end of January.

According to Ryan's Notes (2005c), the January monthly average prices for U.S. ferromolybdenum (FeMo) ranged from \$36.000 to \$37.125 per pound of molybdenum content, compared with \$34.143 to \$36.143 in December. European FeMo monthly averages ranged from \$84.875 to \$87.500 per kilogram (kg) of molybdenum content in January as compared with \$85.286 to \$87.286 in December. In January, worldwide molybdenum oxide prices ranged from \$32.438 to \$33.438 per pound versus \$32.000 to \$32.929 in December.

Low ferromolybdenum inventories in the hands of traders, consumers, and producers could lead to further price increases. FMP Metallurgical Ltd. confirmed that it planned to restart its ferromolybdenum converter in Glossop, England, at the end of February. The facility was believed to have been producing 3,000 metric tons per year (t/yr) of ferromolybdenum before it was shut down in March 2004 following a roof collapse. A company insider noted that the plant had not reopened earlier owing to a shortage of molybdenum oxide. Blame for the supply bottleneck was placed on limited available molybdenum oxide roasting capacity. Rumors that Phelps Dodge Corp. was planning to build a second roaster at its Rotterdam plant were denied by company sources (Ryan's Notes, 2005a).

Phelps Dodge reported that it expected to produce 29,000 t (64 million pounds) of molybdenum in 2005 as compared with 26,000 t (57.5 million pounds) in 2004. Phelps Dodge's production in 2004 was split about equally between byproduct

and primary sources. Senior vice president for marketing, Art Miele, noted that the molybdenum market grew about 10% in 2004, and stated that the market had gone from a surplus in 2002 to a deficit in 2004. He expected more balance between supply and demand and moderate growth in 2005 (Ryan's Notes, 2005b).

Corporación Nacional del Cobre de Chile (Codelco) reported that it expected to produce 33,500 t (73.8 million pounds) of molybdenum in 2005 as compared with 32,000 t (70.5 million pounds) in 2004. Codelco production increased from a low of 20,000 t (44 million pounds) in 2002 owing to higher molybdenum grades in its copper ores and improved recovery in the concentration process. The expansion in output since 2002 exceeded the company's ability to secure roasting capacity for its molybdenum concentrates. In June 2005, the company planned to begin sending 5,000 t/yr (11 million pounds per year) of molybdenum for roasting in a converted copper smelter at Noranda Inc.'s Altonorte Mine (Platts Metals Week, 2005).

Included in this Mineral Industry Surveys are U.S. production and shipments of molybdenum concentrates and materials, U.S. consumption by end use, stocks of molybdenum material in December 2004 and January 2005, and trade data for November and December 2004.

### References Cited

- Platts Metals Week, 2005, Codelco to produce 74-million lb of molybdenum in 2005: Platts Metals Week, v. 76, no. 4, January 24, p. 14.  
Ryan's Notes, 2005a, Low stocks sustain Mo prices: Ryan's Notes, v. 11, no. 3, January 17, p. 4.  
Ryan's Notes, 2005b, PD to up moly output 6.5-million lb: Ryan's Notes, v. 11, no. 5, January 31, p. 2.  
Ryan's Notes, 2005c, [untitled]: Ryan's Notes, v. 11, no. 6, February 7, p. 4.

TABLE 1  
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS<sup>1</sup>

(Metric tons, contained molybdenum)

	2004			2005 January
	January- December <sup>p</sup>	January	December	
Production	42,100	3,370	4,360	4,150
Shipments: <sup>2</sup>				
Domestic	31,100	2,300	3,280	2,890
Export	11,100	1,380	1,450	1,330

<sup>p</sup>Preliminary.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>As reported by producers.

TABLE 2  
U.S. REPORTED PRODUCTION AND SHIPMENTS OF MOLYBDENUM  
PRODUCTS<sup>1</sup>

(Metric tons, contained molybdenum)

	2004			2005 January
	January- December <sup>p</sup>	January	December <sup>r</sup>	
Gross production	65,800	5,950	6,110	6,550
Internal consumption <sup>2</sup>	41,600 <sup>r</sup>	3,790	3,950	4,330
Gross shipments	39,100	2,510	3,490	3,770

<sup>p</sup>Preliminary. <sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

TABLE 3  
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS<sup>1</sup>

(Kilograms, contained molybdenum)

End use	Molybdc oxides	Ferro molyb- denum <sup>2</sup>	Ammonium and sodium molybdate	Molyb- denum scrap	Other	Total
2004, December:						
Steel:						
Carbon	30,400	W	--	--	W	30,400
High-strength low-alloy	32,000	22,100	--	--	11,300	65,400
Stainless and heat-resisting	204,000	65,500	--	W	6,780	277,000
Full alloy	134,000	185,000	--	--	1,510	320,000
Tool	51,100	W	--	--	--	51,100
<b>Total</b>	<b>452,000</b>	<b>273,000</b>	<b>--</b>	<b>W</b>	<b>19,600</b>	<b>744,000</b>
Cast irons (gray, malleable, and ductile iron)	W	11,000	--	--	763	11,800
Superalloys	70,000	W	--	(3)	118,000	188,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	93	2,910	--	--	20	3,020
Mill products made from metal powder <sup>4</sup>	--	--	--	--	129,000	129,000
Cemented carbides and related products <sup>5</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	976	976
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	14,500	14,500
Other	1,090	43,500	78,100	16	16,800	139,000
<b>Grand total</b>	<b>600,000</b>	<b>330,000</b>	<b>78,100</b>	<b>16</b>	<b>300,000</b>	<b>1,310,000</b>
Stocks, December 31, 2004	419,000	255,000	5,050	11,700	853,000	1,540,000
2005, January:						
Steel:						
Carbon	46,000	W	--	--	W	46,000
High-strength low-alloy	24,500	16,300	--	--	11,300	52,200
Stainless and heat-resisting	151,000	64,300	--	W	6,780	222,000
Full alloy	156,000	224,000	--	--	1,510	381,000
Tool	49,400	W	--	--	--	49,400
<b>Total</b>	<b>426,000</b>	<b>304,000</b>	<b>--</b>	<b>W</b>	<b>19,600</b>	<b>750,000</b>
Cast irons (gray, malleable, and ductile iron)	W	11,000	--	--	763	11,800
Superalloys	61,100	W	--	(3)	111,000	172,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	127	4,730	--	--	20	4,870
Mill products made from metal powder <sup>4</sup>	--	--	--	--	133,000	133,000
Cemented carbides and related products <sup>5</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	1,470	1,470
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	12,100	12,100
Other	1,090	35,400	73,400	16	16,800	127,000
<b>Grand total</b>	<b>566,000</b>	<b>356,000</b>	<b>73,400</b>	<b>16</b>	<b>295,000</b>	<b>1,290,000</b>
Stocks, January 31, 2005	400,000	245,000	5,400	23,500	853,000	1,530,000

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

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

<sup>2</sup>Includes calcium molybdate.

<sup>3</sup>Included in "Other" of the "Superalloys" category.

<sup>4</sup>Includes ingot, wire, rod, and sheet.

<sup>5</sup>Includes construction, mining, oil and gas, metalworking machinery.

TABLE 4  
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES  
(including roasted concentrate), BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2003		2004		
	January- December	December	November	December	January- December
Australia	102,000	2,360	5,700	--	30,500
Austria	--	--	--	--	1,310,000
Belgium	3,190,000	238,000	843,000	79,500	6,470,000
Brazil	42,600	280	4,090	1,750	31,000
Canada	910,000	29,900	51,700	135,000	1,370,000
Chile	368,000	352,000	--	--	1,380,000
China	82,600	19,500	--	--	36,000
Costa Rica	22,500	--	720	--	26,700
India	44,300	32,400	--	--	430
Italy	20,300	5,070	--	--	--
Japan	2,000,000	136,000	144,000	70,700	5,730,000
Korea, Republic of	61,400	1,880	1,860	1,950	95,200
Mexico	3,730,000	41,100	300,000	393,000	3,910,000
Netherlands	10,900,000	366,000	698,000	965,000	14,100,000
Sweden	25,700	--	--	38,200	38,200
Taiwan	9,590	--	--	590	19,200
United Kingdom	7,880,000	558,000	252,000	721,000	8,910,000
Other	137,000	14,400	102,000	3,300	2,770,000
Total	29,500,000	1,800,000	2,400,000	2,410,000	46,200,000

-- Zero.

<sup>1</sup>Data 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 COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2003		2004		
	January- December	Year to date	November	December	Year to date
Australia	873	--	--	--	1,090
Canada	547,000	63,800	75,500	59,000	870,000
Denmark	241	--	--	--	--
France	--	--	10,100	--	10,100
Indonesia	--	--	381	--	381
Japan	61	--	--	--	--
Mexico	43,100	--	--	--	33,700
Netherlands	25,500	--	--	--	--
Sweden	--	--	--	9,150	9,150
United Kingdom	--	--	--	--	491
Total	617,000	63,800	86,000	68,100	925,000

-- Zero.

<sup>1</sup>Data 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 PRODUCTS<sup>1</sup>

(Metric tons, unless otherwise specified)

Material	January-December 2003			December 2004			January-December 2004		
	Gross weight	Contained molybdenum	Value <sup>2</sup> (thousands)	Gross weight	Contained molybdenum	Value <sup>2</sup> (thousands)	Gross weight	Contained molybdenum	Value <sup>2</sup> (thousands)
Ore and concentrates roasted	6,310,000	3,960,000	\$41,800	716,000	448,000	\$22,500	7,580,000	4,710,000	\$133,000
Ore and concentrates other	2,870,000	1,230,000	9,570	2,070,000	859,000	46,100	9,330,000	4,070,000	135,000
Molybdenum chemicals:									
Oxides and hydroxides	1,300,000	NA	9,600	108,000	NA	3,130	822,000	NA	15,800
Molydates of ammonium	1,620,000	937,000	11,500	307,000	225,000	2,930	1,940,000	1,330,000	18,400
Molydates (all others)	324,000	145,000	1,150	41,100	15,700	341	254,000	116,000	1,430
Molybdenum orange	987,000	NA	4,310	64,000	NA	343	1,030,000	NA	4,760
Ferromolybdenum	5,740,000	3,690,000	37,500	973,000	616,000	32,700	8,310,000	5,310,000	158,000
Molybdenum powders	57,000	43,100	1,950	6,180	5,590	471	139,000	95,200	4,930
Molybdenum unwrought	139,000	136,000	1,680	1,270	1,190	123	151,000	151,000	3,520
Molybdenum waste and scrap	425,000	388,000	4,900	16,200	10,200	230	454,000	415,000	10,200
Molybdenum wire	10,600	NA	751	2,290	NA	329	20,500	NA	2,010
Molybdenum other	79,900	NA	6,160	20,000	NA	1,830	132,000	NA	13,700
Total	19,900,000	10,500,000	131,000	4,330,000	2,180,000	111,000	30,200,000	16,200,000	501,000

NA Not available.

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

<sup>2</sup>Customs value.

Source: U.S. Census Bureau.