

Mineral Industry Surveys

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MOLYBDENUM IN FEBRUARY 2016

Domestic production of molybdenum in concentrate in February 2016 was slightly less than the output of the previous month and 46% less than that of February 2015 (fig. 1). The large decrease was attributed to the closure of byproduct molybdenum circuits at copper mines. In February 2015, molybdenum was produced as a byproduct at eight copper mines whereas in February 2016, molybdenum was produced as a byproduct at only five copper mines. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 6,730 metric tons (t) at yearend 2015 and about 6,680 t at the end of February.

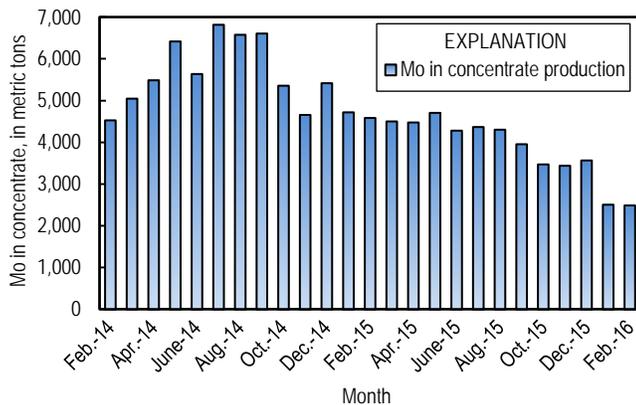


Figure 1. Monthly domestic production of molybdenum (Mo) in concentrate from February 2014 through February 2016 (may include revisions to previously published data). Source: U.S. Geological Survey.

According to CRU Group, the February 2016 monthly average price range for U.S. ferromolybdenum (FeMo) was \$6.238 to \$6.881 per pound of molybdenum content, compared with \$6.263 to \$6.831 per pound in January 2016. European

FeMo monthly averages ranged from \$13.450 to \$13.688 per kilogram of molybdenum content in February compared with \$13.769 to \$14.056 per kilogram in January. In February, U.S. molybdenum oxide (MoO₃) prices ranged from \$5.250 to \$5.350 per pound compared with \$5.356 to \$5.469 per pound in January (fig. 2).

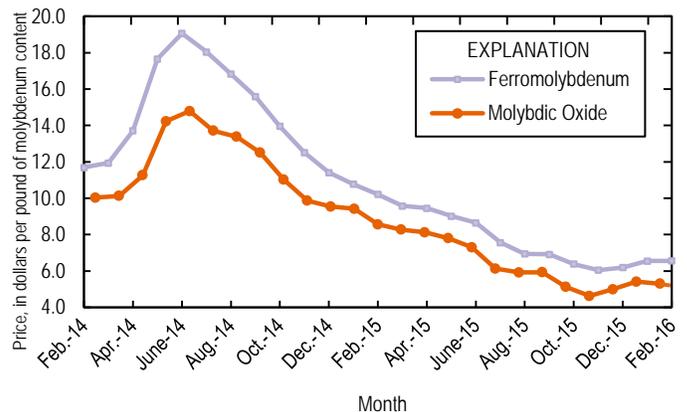


Figure 2. Average monthly prices for U.S. ferromolybdenum and molybdenic oxide from February 2014 through February 2016. Source: CRU Group.

Reference Cited

CRU Group, 2016, Molybdenum prices: CRU Group, May 1. (Accessed May 2, 2016 via <http://www.crugroup.com/>)

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TABLE 1
U.S. SALIENT MOLYBDENUM CONCENTRATE
STATISTICS^{1,2}

(Metric tons, contained molybdenum)

Period	Production	Shipments ^{3,4}
2015:		
January–February ^f	9,310	9,300
February	4,590	4,610
March	4,500	4,490
April	4,480	4,490
May	4,710	4,720
June	4,280	4,290
July	4,370	4,370
August	4,310	4,270
September	3,960	4,000
October ^f	3,470	3,450
November ^f	3,440	3,400
December ^f	3,570	3,640
January–December	50,400	50,400
2016:		
January ^f	2,510	2,510
February	2,490	2,490
January–February	5,000	5,000

^fRevised.

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

²Includes data from Freeport-McMoRan Copper & Gold Inc., 2015-2016. Adjusted by USGS to reflect estimated monthly data.

³As reported by producers.

⁴Shipments include sales to domestic customers, sales for export, and transfers to other company plants.

TABLE 2
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS¹

(Kilograms, contained molybdenum)

End use	Molybdic oxides	Ferro molybdenum ²	Ammonium and sodium molybdate	Molybdenum scrap	Other	Total
2016:						
January:						
Steel:						
Carbon	W	W	--	--	--	W
High-strength low-alloy	W	7,120	--	--	--	7,120
Stainless and heat-resisting	182,000	49,700	--	(3)	W	232,000
Full alloy	246,000	148,000	--	--	W	394,000
Tool	W	W	--	--	--	W
Total	428,000	205,000	--	(3)	W	633,000
Cast irons (gray, malleable, and ductile iron)	W	W	--	--	--	W
Superalloys	W	W	--	(3)	65,600	65,600
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	--	W
Other alloys	87	W	--	--	--	87
Mill products made from metal powder ⁴	--	--	--	--	W	W
Cemented carbides and related products ⁵	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	(3)	--	--	--
Catalysts	W	--	(3)	--	W	W
Other chemicals	--	--	--	--	--	--
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	9,440	9,440
Other	201,000	48,100	425	(3)	316,000	565,000
Grand total	629,000	253,000	425	(3)	391,000	1,270,000
Stocks, January 31, 2016	554,000	283,000	3,420	(6)	(6)	1,730,000
February:						
Steel:						
Carbon	W	W	--	--	--	W
High-strength low-alloy	W	7,120	--	--	--	7,120
Stainless and heat-resisting	185,000	52,500	--	(3)	W	237,000
Full alloy	246,000	148,000	--	--	W	394,000
Tool	W	W	--	--	--	W
Total	431,000	208,000	--	(3)	W	639,000
Cast irons (gray, malleable, and ductile iron)	W	W	--	--	--	W
Superalloys	W	W	--	(3)	71,500	71,500
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	--	W
Other alloys	244	W	--	--	--	244
Mill products made from metal powder ⁴	--	--	--	--	W	W
Cemented carbides and related products ⁵	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	(3)	--	--	--
Catalysts	W	--	(3)	--	W	W
Other chemicals	--	--	--	--	--	--
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	9,440	9,440
Other	196,000	41,800	425	(3)	407,000	645,000
Grand total	627,000	250,000	425	(3)	488,000	1,370,000
Stocks, February 29, 2016	531,000	281,000	3,420	(6)	(6)	1,700,000

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

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

²Includes calcium molybdate.

³Withheld to avoid disclosing company proprietary data; included in "Other, Miscellaneous and unspecified uses: Other" category.

⁴Includes ingot, wire, rod, and sheet.

⁵Includes construction, mining, oil and gas, metalworking machinery.

⁶Withheld to avoid disclosing company proprietary data; included in "Total."

TABLE 3
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES
(including roasted concentrate), BY COUNTRY¹

(Kilograms, contained molybdenum)

Country	2015			2016		
	January– December	February	January– February	January	February	January– February
Belgium	3,900,000	364,000	895,000	13,800	--	13,800
Brazil	83,400	--	--	12,200	--	12,200
Canada	1,700,000	203,000	375,000	153,000	111,000	264,000
China	477,000	82,000	154,000	21,500	118,000	140,000
Estonia	118,000	--	--	--	--	--
India	252,000	2,470	2,470	--	--	--
Japan	2,900,000	341,000	587,000	150,000	148,000	298,000
Korea, Republic of	1,350,000	46,400	151,000	43,900	--	43,900
Mexico	2,520,000	363,000	563,000	--	--	--
Netherlands	18,100,000	1,270,000	2,680,000	652,000	1,230,000	1,890,000
Russia	7,260	--	--	--	--	--
Sweden	16,900	--	--	--	--	--
Taiwan	21,000	--	--	--	15,000	15,000
Thailand	2,110	124	1,060	--	--	--
United Kingdom	5,110,000	855,000	1,270,000	487,000	209,000	696,000
Vietnam	274,000	6,050	6,430	--	26,100	26,100
Total	36,800,000	3,540,000	6,690,000	1,530,000	1,860,000	3,400,000

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 4
U.S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY¹

(Kilograms, contained molybdenum)

Country	2015			2016		
	January– December	February	January– February	January	February	January– February
Canada	501,000	42,600	87,300	24,500	28,800	53,300
Colombia	706	--	--	95	--	95
Denmark	515	--	--	--	--	--
Mexico	82,300	7,060	7,950	318	285	603
Vietnam	165	--	--	--	--	--
Total	585,000	49,600	95,200	24,900	29,100	54,000

-- 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. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS¹

(Kilograms, unless otherwise specified)

Material	2015			2016					
	January–December 2015			February			January–February		
	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	6,860,000	4,100,000	\$77,400	618,000	366,000	\$5,230	1,910,000	1,140,000	\$16,300
Ore and concentrates other	18,000,000	8,820,000	129,000	1,130,000	576,000	5,210	2,820,000	1,470,000	12,600
Molybdenum chemicals:									
Oxides and hydroxides	756,000	NA	10,100	287,000	NA	3,120	557,000	NA	5,960
Molybdates of ammonium	1,000,000	565,000	11,600	267,000	151,000	3,130	415,000	233,000	4,790
Molybdates (all others)	32,700	12,900	455	49,000	20,200	385	49,000	20,200	387
Molybdenum orange	609,000	NA	2,580	46,700	NA	158	105,000	NA	373
Ferromolybdenum	2,380,000	1,610,000	36,300	112,000	78,300	1,620	185,000	128,000	2,650
Molybdenum powders	232,000	206,000	7,560	11,900	11,400	291	56,900	55,100	1,400
Molybdenum unwrought	674,000	671,000	16,300	95,200	95,100	1,810	145,000	144,000	2,660
Molybdenum waste and scrap	554,000	534,000	12,000	76,600	76,400	1,370	143,000	140,000	2,470
Molybdenum wire	14,400	NA	1,860	1,770	--	145	2,350	--	264
Molybdenum other	231,000	NA	18,100	11,900	--	976	29,200	--	2,060
Total	31,300,000	XX	324,000	2,700,000	XX	23,400	6,420,000	XX	51,900

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.