

# Mineral Industry Surveys

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## MOLYBDENUM IN JUNE 2016

Domestic production of molybdenum in concentrate in June 2016 was 3% less than the output of the previous month and 31% less than that of June 2015 (fig. 1). The large decrease continued to be attributable to the closure of byproduct molybdenum circuits at copper mines. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 7,750 metric tons (t) at the end of June, an increase from about 6,730 t at yearend 2015.

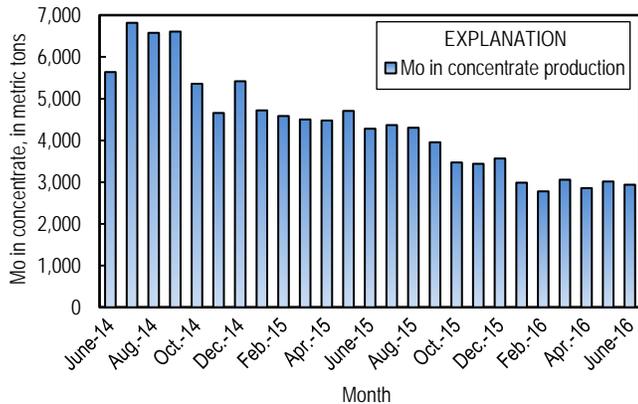


Figure 1. Monthly domestic production of molybdenum (Mo) in concentrate from June 2014 through June 2016 (may include revisions to previously published data). Source: U.S. Geological Survey.

According to CRU Group, the June 2016 monthly average price range for U.S. ferromolybdenum (FeMo) was \$8.739 to \$9.200 per pound of molybdenum content, compared with \$7.633 to \$8.300 per pound in May 2016. European FeMo monthly averages ranged from \$18.444 to \$18.783 per kilogram of molybdenum content in June compared with \$17.806 to

\$18.256 per kilogram in May. In June, U.S molybdenum oxide (MoO<sub>3</sub>) prices ranged from \$7.889 to \$8.044 per pound compared with \$6.928 to \$7.144 per pound in May (fig. 2).

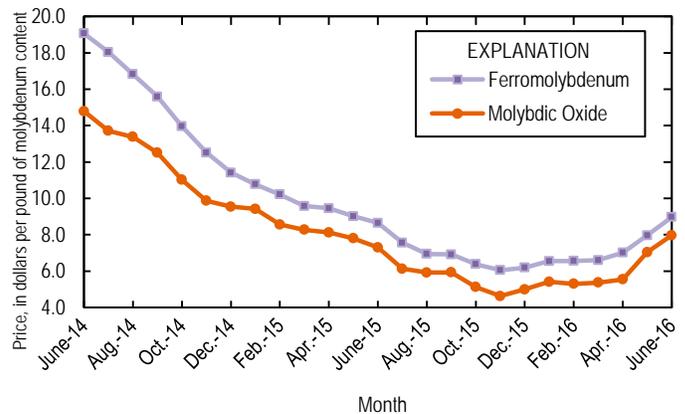


Figure 2. Average monthly prices for U.S. ferromolybdenum and molybdenic oxide from June 2014 through June 2016. Source: CRU Group.

**Reference Cited**

CRU Group, 2016, Molybdenum prices: CRU Group, August 1. (Accessed September 7, 2016, via <http://www.crugroup.com/>)

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TABLE 1  
U.S. SALIENT MOLYBDENUM CONCENTRATE  
STATISTICS<sup>1,2</sup>

(Metric tons, contained molybdenum)

Period	Production	Shipments <sup>3,4</sup>
2015:		
January–June <sup>f</sup>	27,300	27,300
June	4,280	4,290
July	4,370	4,370
August	4,310	4,270
September	3,960	4,000
October	3,470	3,450
November	3,440	3,400
December	3,570	3,640
January–December	50,400	50,400
2016:		
January <sup>f</sup>	2,990	2,960
February <sup>f</sup>	2,780	2,790
March <sup>f</sup>	3,060	3,050
April <sup>f</sup>	2,860	2,890
May <sup>f</sup>	3,020	2,970
June	2,940	2,950
January–June	17,700	17,600

<sup>f</sup>Revised.

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

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

<sup>3</sup>As reported by producers.

<sup>4</sup>Shipments 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 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
2016:						
May:						
Steel:						
Carbon	W	W	--	--	--	W
High-strength low-alloy	W	7,120	--	--	--	7,120
Stainless and heat-resisting	182,000	48,600	--	(3)	W	230,000
Full alloy	246,000	148,000	--	--	W	394,000
Tool	W	W	--	--	--	W
Total	428,000	204,000	--	(3)	W	632,000
Cast irons (gray, malleable, and ductile iron)	W	W	--	--	--	W
Superalloys	W	W	--	(3)	72,300	72,300
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	--	W
Other alloys	257	W	--	--	--	257
Mill products made from metal powder <sup>4</sup>	--	--	--	--	W	W
Cemented carbides and related products <sup>5</sup>	--	--	--	--	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	38,300	425	(3)	314,000	549,000
Grand total	624,000	242,000	425	(3)	396,000	1,260,000
Stocks, May 31, 2016	530,000	294,000	3,420	(6)	(6)	1,710,000
June:						
Steel:						
Carbon	W	W	--	--	--	W
High-strength low-alloy	W	7,120	--	--	--	7,120
Stainless and heat-resisting	180,000	49,500	--	(3)	W	229,000
Full alloy	246,000	148,000	--	--	W	394,000
Tool	W	W	--	--	--	W
Total	426,000	205,000	--	(3)	W	631,000
Cast irons (gray, malleable, and ductile iron)	W	W	--	--	--	W
Superalloys	W	W	--	(3)	66,400	66,400
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	--	W
Other alloys	205	W	--	--	--	205
Mill products made from metal powder <sup>4</sup>	--	--	--	--	W	W
Cemented carbides and related products <sup>5</sup>	--	--	--	--	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	200,000	36,300	425	(3)	322,000	559,000
Grand total	626,000	241,000	425	(3)	398,000	1,270,000
Stocks, June 30, 2016	543,000	300,000	3,420	(6)	(6)	1,730,000

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

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

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

<sup>6</sup>Withheld to avoid disclosing company proprietary data; included in "Total."

TABLE 3  
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES  
(including roasted concentrate), BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2015			2016		
	January– December	June	January– June	May	June	January– June
Belgium	3,900,000	615,000	2,880,000	53,800	116,000	365,000
Brazil	83,400	11,900	47,800	--	11,900	24,100
Canada	1,690,000	153,000	909,000 <sup>f</sup>	134,000	118,000	673,000
China	477,000	12,800	239,000	64,700	114,000	639,000
Estonia	118,000	--	118,000	--	--	--
Germany	--	--	--	3,240	4,510	7,740
India	252,000	--	15,500	17,200	--	29,000
Japan	2,900,000	246,000	1,530,000	153,000	174,000	910,000
Korea, Republic of	1,350,000	211,000 <sup>f</sup>	704,000	21,400	--	108,000
Mexico	2,520,000	156,000	1,340,000	--	--	24,700
Netherlands	18,100,000	1,700,000	9,670,000	1,270,000	936,000	6,220,000
Russia	7,260	--	7,260	--	--	--
Sweden	16,900	--	16,900	--	--	--
Taiwan	21,000	12,900	17,500	--	--	15,000
Thailand	2,110	--	2,110	--	46,300	81,500
United Kingdom	5,110,000	401,000	3,180,000	311,000	44,800	1,510,000
Vietnam	274,000	7,420	120,000	3,870	1,360	124,000
Total	36,800,000	3,520,000 <sup>f</sup>	20,800,000	2,040,000	1,570,000	10,700,000

<sup>f</sup>Revised. -- 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 4  
U.S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2015			2016		
	January– December	June <sup>f</sup>	January– June <sup>f</sup>	May	June	January– June
Argentina	--	--	--	--	227	227
Canada	693,000	96,500	465,000	35,800	61,700	233,000
Colombia	1,010	--	463	--	--	1,520
Denmark	734	245	489	--	245	489
Mexico	120,000	40,800	111,000	227	20,200	22,000
Vietnam	235	--	235	--	--	--
Total	815,000	138,000	577,000	36,000	82,400	257,000

<sup>f</sup>Revised. -- 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. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS<sup>1</sup>

(Kilograms, unless otherwise specified)

Material	2015			2016					
	January–December 2015			June			January–June		
	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	6,780,000	4,050,000	\$76,400	494,000	289,000	\$4,530	3,390,000	2,020,000	\$28,100
Ore and concentrates other	18,000,000	8,830,000	129,000	2,340,000	1,190,000	16,600	9,890,000	5,070,000	58,200
Molybdenum chemicals:									
Oxides and hydroxides	756,000	NA	10,100	312,000	NA	4,480	1,800,000	NA	21,300
Molybdates of ammonium	1,000,000	565,000	11,600	281,000	158,000	3,370	1,550,000	872,000	17,500
Molybdates (all others)	32,700	12,900	455	7,050	2,780	62	93,900	37,900	724
Molybdenum orange	609,000	NA	2,580	79,500	NA	260	339,000	NA	1,200
Ferromolybdenum	2,380,000	1,610,000	36,300	295,000	192,000	4,700	1,400,000	960,000	22,600
Molybdenum powders	232,000	206,000	7,560	14,200	13,800	434	116,000	112,000	3,150
Molybdenum unwrought	682,000	679,000	16,500	102,000	102,000	1,920	500,000	498,000	8,840
Molybdenum waste and scrap	536,000	516,000	11,500	46,400	44,300	872	349,000	333,000	5,990
Molybdenum wire	14,400	NA	1,860	2,700	--	340	8,000	--	959
Molybdenum other	239,000	NA	18,400	23,600	--	1,430	113,000	--	8,200
Total	31,200,000	XX	323,000	4,000,000	XX	39,000	19,500,000	XX	177,000

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

<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.