

# Mineral Industry Surveys

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## MOLYBDENUM IN OCTOBER 2011

Domestic production of molybdenum (Mo) in concentrate in October 2011 was 17% less than the output of the previous month and about 22% less than that of October 2010. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 8,150 metric tons (t) at the beginning of 2011 and about 10,000 t at the end of October.

According to Ryan's Notes, the October monthly average price range for U.S. ferromolybdenum (FeMo) was \$15.275 to \$16.300 per pound of molybdenum content, compared with \$16.300 to \$16.767 per pound in September. European FeMo monthly averages ranged from \$32.388 to \$32.850 per kilogram (kg) of molybdenum content in October compared with \$35.000 to \$35.344 per kg in September. In October, worldwide molybdenum oxide (MoO<sub>3</sub>) prices ranged from \$13.219 to \$13.506 per pound compared with \$14.278 to \$14.456 per pound in September.

Freeport McMoran Copper & Gold Inc. (FCX) announced that construction at its Climax Mine in Colorado was approximately 80% complete. The company expected to commence production during 2012. Production was expected to ramp up at a rate of 9,000 metric tons per year (t/yr) of molybdenum during 2013 and depending on market conditions could increase to 13,600 t/yr of molybdenum (Freeport

McMoRan Copper & Gold Inc., 2011, p. 9). FCX announced that it had already spent the capital and hired staff for the project, which would not be further postponed owing to uncertainty of the market. The estimated remaining cost of the initial phase of the project was \$135 million. FCX spent \$575 million at Climax through September 30, 2011. An additional \$200 million has been allotted for a tailings dam and water treatment facilities that were expected to be completed after startup (Ryan's Notes, 2011).

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 September and October 2011. Export data for August and September 2011 and import data for September 2011 are also included.

### References Cited

- Freeport McMoran Copper & Gold Inc., 2011, Freeport McMoran Copper & Gold Inc. reports third-quarter and nine-month 2011 results: Phoenix, AZ, Freeport McMoran Copper & Gold Inc., October 19, 41 p.  
Ryan's Notes, 2011, No turning back on Climax project: Ryan's Notes, v. 17, no. 43, October 24, p. 1.

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

(Metric tons, contained molybdenum)

	2010 <sup>P</sup>		2011		
	January– December	January– October	September	October	January– October
Production	58,500	47,000 <sup>r</sup>	5,020	4,190	54,000
Shipments: <sup>2</sup>					
Domestic	14,000	11,400	1,590	1,420	15,600
Export	W	W	W	W	W

<sup>P</sup>Preliminary. <sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data.

<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)

	2010 <sup>P</sup>		2011		
	January– December	January– October	September	October	January– October
Gross production	68,600	55,500 <sup>r</sup>	W	W	W
Internal consumption <sup>2</sup>	W	W	W	W	W
Gross shipments	51,100	41,800 <sup>r</sup>	W	W	W

<sup>P</sup>Preliminary. <sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data.

<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	Molybdic oxides	Ferro molybdenum <sup>2</sup>	Ammonium and sodium molybdate	Molybdenum scrap	Other	Total
2011, September:						
Steel:						
Carbon	32,200	W	--	--	W	32,200
High-strength low-alloy	61,100	7,320	--	--	--	68,400
Stainless and heat-resisting	161,000	59,200	--	(3)	6,510	227,000
Full alloy	272,000	277,000	--	--	W	549,000
Tool	W	W	--	--	--	W
Total	527,000	343,000	--	--	6,510	877,000
Cast irons (gray, malleable, and ductile iron)	W	W	--	--	W	W
Superalloys	(4)	W	--	(4)	91,700	91,700
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	W	W
Other alloys	34	W	--	--	--	34
Mill products made from metal powder <sup>5</sup>	W	--	--	--	W	W
Cemented carbides and related products <sup>6</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	(3)	--	--	--
Catalysts	77,300	--	(3)	--	W	77,300
Other chemicals	--	--	--	--	W	W
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	10,800	10,800
Other	49,200	58,200	(3)	--	311,000	418,000
Grand total	653,000	402,000	--	--	420,000	1,470,000
Stocks, September 30, 2011	433,000	331,000	2,180	(7)	(7)	1,650,000
2011, October:						
Steel:						
Carbon	34,600	W	--	--	W	34,600
High-strength low-alloy	52,000	7,320	--	--	--	59,400
Stainless and heat-resisting	165,000	59,600	--	(3)	6,510	231,000
Full alloy	265,000	323,000	--	--	W	588,000
Tool	W	W	--	--	--	W
Total	517,000	390,000	--	--	6,510	913,000
Cast irons (gray, malleable, and ductile iron)	W	W	--	--	W	W
Superalloys	(4)	W	--	(4)	103,000	103,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	W	W
Other alloys	160	W	--	--	--	160
Mill products made from metal powder <sup>5</sup>	W	--	--	--	W	W
Cemented carbides and related products <sup>6</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	(3)	--	--	--
Catalysts	77,300	--	(3)	--	W	77,300
Other chemicals	--	--	--	--	W	W
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	10,800	10,800
Other	49,200	62,300	(3)	--	278,000	390,000
Grand total	644,000	452,000	--	--	398,000	1,490,000
Stocks, October 31, 2011	450,000	321,000	2,160	(7)	(7)	1,680,000

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>Withheld to avoid disclosing company proprietary data.

<sup>5</sup>Includes ingot, wire, rod, and sheet.

<sup>6</sup>Includes construction, mining, oil and gas, metalworking machinery.

<sup>7</sup>Withheld to avoid disclosing company proprietary data; included in "Total."

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

(Kilograms, contained molybdenum)

Country	2010			2011		
	January– December	September	January– September	August	September	January– September
Argentina	17,200	13,200	13,200	--	--	--
Australia	--	--	--	--	--	800
Austria	440,000	50,000	113,000	--	--	267,000
Belgium	9,610,000	588,000	7,030,000	--	269,000	4,830,000
Brazil	310,000	36,700	192,000	31,900	19,500	335,000
Canada	1,150,000	44,600	768,000	68,000	46,300	1,160,000
Chile	--	--	--	891,000	--	3,220,000
China	5,280,000	299,000	4,010,000	210,000	183,000	2,120,000
El Salvador	--	--	--	--	--	881
Finland	--	--	--	23,300	23,200	237,000
France	16,600	--	4,410	--	--	121,000
Germany	143,000	--	143,000	811	435	120,000
Hong Kong	1,140	--	--	--	--	--
India	924,000	99,500	601,000	35,500	35,100	756,000
Italy	13,200	--	--	--	--	37,300
Japan	2,630,000	235,000	1,630,000	334,000	441,000	3,170,000
Korea, Republic of	805,000	105,000	624,000	143,000	53,500	1,270,000
Luxembourg	11,500	--	--	--	--	24,800
Mexico	5,040,000	312,000	3,620,000	580,000	693,000	5,560,000
Netherlands	8,210,000	660,000	6,340,000	810,000	953,000	8,210,000
New Caledonia	1,050	--	1,050	--	--	--
Panama	2,360	--	--	--	--	--
Poland	194	--	194	--	--	--
Slovenia	24,600	--	24,600	--	--	--
South Africa	520,000	100,000	503,000	--	--	--
Spain	24,600	--	24,600	--	--	330
Sweden	12,100	--	--	12,200	11,700	133,000
Taiwan	67,900	--	26,500	--	--	40,500
Thailand	19,200	--	19,200	--	--	7,260
United Arab Emirates	154,000	62,300	117,000	--	--	12,600
United Kingdom	5,000,000	351,000	3,400,000	475,000	273,000	4,790,000
Venezuela	940	--	940	838	--	838
Vietnam	149,000	12,500	63,900	147,000	110,000	278,000
Total	40,600,000	2,970,000	29,300,000	3,760,000	3,110,000	36,700,000

-- 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	2010			2011		
	January– December	September	January– September	August	September	January– September
Argentina	13,300	--	13,300	--	--	--
Australia	628	--	628	--	--	241
Canada	677,000	65,800	541,000	55,100	105,000	690,000
Colombia	1,170	551	1,170	--	--	--
Denmark	372	--	172	--	--	330
India	36,600	12,600	23,500	--	--	--
Japan	12,700	--	--	--	--	--
Korea, Republic of	11,200	--	11,200	--	--	--
Mexico	12,900	--	9,620	6,410	12,300	29,500
Netherlands	196,000	41,200	93,200	12,500	26,200	229,000
Philippines	939	--	939	--	--	--
Singapore	14,300	--	7,380	--	--	--
Turkey	103	--	103	13,400	13,400	116,000
Total	978,000	120,000	703,000	87,400	157,000	1,060,000

-- 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>

(Kilograms, unless otherwise specified)

Material	January–December 2010			September 2011			January–September 2011		
	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	10,300,000	6,340,000	\$112,000	1,160,000	711,000	\$14,500	8,620,000	5,300,000	\$105,000
Ore and concentrates other	13,500,000	6,610,000	202,000	1,820,000	601,000	27,000	13,700,000	5,560,000	246,000
Molybdenum chemicals:									
Oxides and hydroxides	508,000	NA	12,200	23,000	NA	558	111,000	NA	3,010
Molybdates of ammonium	1,590,000	905,000	28,600	60,900	34,400	1,250	768,000	454,000	17,600
Molybdates (all others)	62,600	23,300	1,510	1,160	549	70	21,200	9,290	1,050
Molybdenum orange	349,000	NA	2,730	36,500	NA	250	238,000	NA	2,130
Ferromolybdenum	5,330,000	3,560,000	130,000	467,000	313,000	11,100	3,430,000	2,290,000	87,900
Molybdenum powders	232,000	221,000	10,100	11,600	11,100	620	248,000	232,000	12,100
Molybdenum unwrought	307,000	301,000	10,200	77,600	76,000	2,890	468,000	447,000	17,600
Molybdenum waste and scrap	703,000	682,000	26,900	107,000	106,000	3,550	566,000	527,000	20,900
Molybdenum wire	19,300	NA	3,030	1,600	NA	251	15,600	NA	2,580
Molybdenum other	582,000	NA	37,500	100,000	NA	6,470	635,000	NA	46,700
Total	33,500,000	XX	576,000	3,860,000	XX	68,600	28,900,000	XX	563,000

NA Not available. XX Not applicable.

<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.