

# Mineral Industry Surveys

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## MOLYBDENUM IN OCTOBER 2007

Domestic production of molybdenum (Mo) in concentrate in October 2007 was about the same as the output of the previous month and about 20% less than that of October 2006, according to the U.S. Geological Survey. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 5,330 metric tons (t) at the beginning of 2007 and about 5,340 t at the end of October.

According to Ryan's Notes (2007b), the October monthly average price range for U.S. ferromolybdenum (FeMo) was \$34.133 to \$34.556 per pound of molybdenum content, compared with \$34.588 to \$35.313 in September. European FeMo monthly averages ranged from \$72.900 to \$73.722 per kilogram (kg) of molybdenum content in October compared with \$73.013 to \$73.838 per kg in September. In October, worldwide molybdenum oxide (MoO<sub>3</sub>) prices ranged from \$31.661 to \$32.322 per pound versus \$31.494 to \$32.044 per pound in September.

Freeport-McMoRan Copper & Gold Inc. announced that a decision as to whether to proceed with the restart of its Climax

Mine would not be made until yearend 2007. While Freeport continued to evaluate the feasibility of the Climax restart, it expected a green light for the project. Annual production from Climax was projected to be about 13,600 t (30 million pounds) at a cash cost of about \$3.50 per pound. Freeport stated that it would consider a second-phase expansion of Climax that could double output (Ryan's Notes, 2007a).

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 2007. Export data for August and September 2007 and import data for September 2007 are also included.

### References Cited

Ryan's Notes, 2007a, Phase II of Climax project could double output from proposed 30-million ppy: Ryan's Notes, v. 13, no. 43, October 29, p. 1.  
Ryan's Notes, 2007b, [untitled]: Ryan's Notes, v. 13, no. 44, November 5, p. 12.

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

(Metric tons, contained molybdenum)

	2006		2007		
	January- December	January- October	September	October	January- October
Production	59,700 <sup>r</sup>	51,000	4,080 <sup>r</sup>	4,060	47,400
Shipments: <sup>2</sup>					
Domestic	38,600	33,400	3,160 <sup>r</sup>	3,280	33,800
Export	21,300	17,800	1,010	865	13,800

<sup>r</sup>Revised.

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

<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)

	2006		2007		
	January- December	January- October	September	October	January- October
Gross production	78,000	65,500 <sup>r</sup>	3,420	3,870	47,900
Internal consumption <sup>2</sup>	47,400	40,600	1,180	864	22,100
Gross shipments	51,000	41,700	3,870	5,150	41,400

<sup>r</sup>Revised.

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

<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
2007, September:						
Steel:						
Carbon	32,900	W	--	--	W	32,900
High-strength low-alloy	37,900	10,200	--	--	11,300	59,400
Stainless and heat-resisting	166,000 <sup>r</sup>	64,000 <sup>r</sup>	--	W	6,510	236,000 <sup>r</sup>
Full alloy	150,000	229,000 <sup>r</sup>	--	--	1,510	380,000 <sup>r</sup>
Tool	61,700	W	--	--	--	61,700
Total	448,000 <sup>r</sup>	303,000 <sup>r</sup>	--	W	19,400	770,000 <sup>r</sup>
Cast irons (gray, malleable, and ductile iron)	W	6,860	--	--	763	7,620
Superalloys	45,400	W	--	W	76,000	121,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	203	2,560	--	--	--	2,760
Mill products made from metal powder <sup>3</sup>	--	--	--	--	190,000	190,000
Cemented carbides and related products <sup>4</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	472	472
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	10,600	10,600
Other	2,000	38,100	72,900	48,800	34,100	196,000
Grand total	573,000 <sup>r</sup>	350,000 <sup>r</sup>	72,900	48,800	331,000	1,380,000
Stocks, September 30, 2007	541,000 <sup>r</sup>	302,000 <sup>r</sup>	4,040 <sup>r</sup>	16,000	859,000	1,720,000
2007, October:						
Steel:						
Carbon	14,800	W	--	--	W	14,800
High-strength low-alloy	37,900	9,930	--	--	11,300	59,200
Stainless and heat-resisting	165,000	64,500	--	W	6,510	236,000
Full alloy	150,000	287,000	--	--	1,510	439,000
Tool	56,000	W	--	--	--	56,000
Total	424,000	361,000	--	W	19,400	805,000
Cast irons (gray, malleable, and ductile iron)	W	6,860	--	--	763	7,620
Superalloys	66,500	W	--	W	76,000	142,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	220	3,980	--	--	--	4,200
Mill products made from metal powder <sup>3</sup>	--	--	--	--	197,000	197,000
Cemented carbides and related products <sup>4</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	472	472
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	10,800	10,800
Other	2,000	37,800	72,900	78,700	30,100	221,000
Grand total	570,000	410,000	72,900	78,700	335,000	1,470,000
Stocks, October 31, 2007	546,000	308,000	4,040	16,000	859,000	1,730,000

<sup>1</sup>Revised. W Withheld to avoid disclosing company proprietary data; included in "Other" of the "Miscellaneous and unspecified uses" category. -- Zero.

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>Includes calcium molybdate.

<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	2006		2007		
	January- December	January- September	August	September	January- September
Australia	88,800	7,350	--	--	800
Belgium	7,490,000	6,020,000	551,000	696,000	4,980,000
Brazil	113,000	56,300	--	--	100,000
Canada	2,680,000	2,090,000	134,000	144,000	1,990,000
Chile	259,000	140,000	--	--	1,270,000
China	405,000	398,000	--	--	71,400
India	82,800	47,100	--	11,500	117,000
Japan	2,260,000	1,740,000	323,000	251,000	1,600,000
Korea, Republic of	45,000	45,000	--	32,300	57,000
Mexico	6,070,000	4,620,000	384,000	396,000	3,740,000
Netherlands	10,300,000	7,460,000	557,000	352,000	7,200,000
Pakistan	--	--	--	--	75,600
Sweden	20,000	--	--	--	--
Switzerland	25,200	25,200	--	--	1,630
Taiwan	53,400	608	17,500	--	17,900
Thailand	9,740	9,740	--	--	9,620
United Kingdom	7,280,000	5,430,000	801,000	585,000	4,310,000
Vietnam	14,100	13,800	--	--	4,130
Other	9,420	7,240 <sup>†</sup>	17,300	25,100	49,100
Total	37,200,000	28,100,000	2,780,000	2,490,000	25,600,000

<sup>†</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. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2006		2007		
	January- December	January- September	August	September	January- September
Argentina	14,500	14,500	--	--	--
Australia	24,500	24,100	13,800	--	25,000
Brazil	37,700	37,700	--	--	--
Canada	1,760,000	1,610,000	19,000	96,100	610,000
India					
Indonesia					
Denmark	57	57	--	--	394
India	667	367	536	--	953
Japan	60	60	--	--	--
Mexico	143,000	140,000	490	--	20,500
Netherlands	14,000	--	--	--	145,000
Saudi Arabia	--	--	--	47,900	93,400
Singapore	1,630	1,630	--	--	--
South Africa	--	--	--	--	13,500
Switzerland	12,000	12,000	--	--	--
Saudi Arabia	--				
United Kingdom	--	--	--	--	24,900
United Kingdom	--	--	--	--	--
Other	2,410				
Total	2,010,000	1,840,000	33,800	144,000	934,000

-- 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 2006			September 2007			January-September 2007		
	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	9,570,000	5,900,000	\$167,000	914,000	575,000	\$26,000	6,730,000	4,230,000	\$137,000
Ore and concentrates other	10,900,000	5,000,000	227,000	175,000	93,200	5,950	12,100,000	5,730,000	303,000
<b>Molybdenum chemicals:</b>									
Oxides and hydroxides	629,000	NA	24,300	10,300	NA	90	168,000	NA	5,880
Molybdates of ammonium	1,430,000	844,000	34,100	42,800	24,300	1,760	677,000	382,000	21,900
Molybdates (all others)	241,000	72,700	2,810	8,690	2,970	96	133,000	47,000	1,670
Molybdenum orange	822,000	NA	5,110	46,000	NA	313	456,000	NA	2,920
Ferromolybdenum	4,810,000	3,060,000	165,000	517,000	332,000	22,700	4,810,000	3,090,000	200,000
Molybdenum powders	367,000	270,000	17,600	4,250	4,250	295	50,400	47,900	3,600
Molybdenum unwrought	191,000	191,000	10,800	1,300	1,300	34	105,000	105,000	6,630
Molybdenum waste and scrap	452,000	445,000	27,800	10,200	10,200	705	385,000	368,000	22,900
Molybdenum wire	18,600	NA	2,550	1,090	NA	160	13,700	NA	2,020
Molybdenum other	130,000	NA	17,000	11,900	NA	1,690	110,000	NA	13,700
Total	29,600,000	15,800,000	701,000	1,740,000	1,040,000	59,800	25,700,000	14,000,000	722,000

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.