

# Mineral Industry Surveys

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## MOLYBDENUM IN FEBRUARY 2011

Domestic production of molybdenum (Mo) in concentrate in February 2011 was 14% less than the output of the previous month and about 16% more than that of February 2010, according to the U.S. Geological Survey. 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 7,640 t at the end of February.

According to Ryan's Notes, the February 2011 monthly average price range for U.S. ferromolybdenum (FeMo) was \$19.975 to \$20.288 per pound (lb) of molybdenum content, compared with \$19.250 to \$19.538 per lb in January 2011. European FeMo monthly averages ranged from \$43.544 to \$43.944 per kilogram (kg) of molybdenum content in February compared with \$43.175 to \$43.675 per kg in January. In February, worldwide molybdenum oxide (MoO<sub>3</sub>) prices ranged from \$17.525 to \$17.725 per lb compared with \$17.100 to \$17.363 per lb in January.

Northern Dynasty Minerals Ltd. (Vancouver, British Columbia, Canada) announced the completion of a preliminary assessment of its Pebble copper-gold-molybdenum project in southwestern Alaska. The assessment confirmed that if just 32% of the site was developed, the project had the potential to produce approximately 14 million metric tons of copper and

635,000 t of molybdenum during a 45-year period. The preliminary assessment updated and substantially revised the project economic analysis last done by the company in 2004. A prefeasibility study was expected to be completed in 2012, prior to the completion of the permitting process under the National Environmental Policy Act (Northern Dynasty Minerals Ltd., 2011, p. 3).

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 January and February 2011. Export data for December 2010 and January 2011 and import data for January 2011 are also included.

### Reference Cited

Northern Dynasty Minerals Ltd., 2011, Northern Dynasty receives positive preliminary assessment technical report for globally significant Pebble copper-gold-molybdenum project in southwest Alaska: Vancouver, British Columbia, Canada, Northern Dynasty Minerals Ltd., February 23, 24 p. (Accessed May 27, 2011, at [http://www.northerndynastyminerals.com/ndm/NewsReleases.asp?printVersion=now&\\_Title=Northern-Dynasty-Receives-Positive-Preliminary-Assessment-Technical-Report-...&ReportID=444069](http://www.northerndynastyminerals.com/ndm/NewsReleases.asp?printVersion=now&_Title=Northern-Dynasty-Receives-Positive-Preliminary-Assessment-Technical-Report-...&ReportID=444069).)

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

(Metric tons, contained molybdenum)

	2010 <sup>p</sup>		2011		
	January- December	January- February	January	February	January- February
Production	59,600	9,120	5,780	4,980	10,800
Shipments: <sup>2</sup>					
Domestic	14,000	2,020	1,000	1,130	2,130
Export	W	W	W	W	W

<sup>p</sup>Preliminary. 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- February	January	February	January- February
Gross production	72,600	11,800 <sup>r</sup>	7,200 <sup>r</sup>	6,320	13,500
Internal consumption <sup>2</sup>	W	W	W	W	W
Gross shipments	51,600	8,230 <sup>r</sup>	4,960	4,210	9,170

<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	Molybdc oxides	Ferro molyb- denum <sup>2</sup>	Ammonium and sodium molybdate	Molyb- denum scrap	Other	Total
2011, January:						
Steel:						
Carbon	33,000	W	--	--	W	33,000
High-strength low-alloy	55,700 <sup>r</sup>	8,230 <sup>r</sup>	--	--	--	63,900
Stainless and heat-resisting	178,000	65,700 <sup>r</sup>	--	W	6,510	250,000 <sup>r</sup>
Full alloy	251,000 <sup>r</sup>	316,000 <sup>r</sup>	--	--	W	567,000 <sup>r</sup>
Tool	W	W	--	--	--	W
Total	518,000 <sup>r</sup>	390,000 <sup>r</sup>	--	W	6,510	914,000
Cast irons (gray, malleable, and ductile iron)	W	W	--	--	W	W
Superalloys	27,600 <sup>r</sup>	W	--	W	89,000 <sup>r</sup>	117,000 <sup>r</sup>
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	W	W
Other alloys	100	W	--	--	--	100
Mill products made from metal powder <sup>3</sup>	--	--	--	--	W	W
Cemented carbides and related products <sup>4</sup>	--	--	--	--	6	6
Chemical and ceramic uses:						
Pigments	--	--	(5)	--	243	243
Catalysts	77,300	--	(5)	--	W	77,300
Other chemicals	--	--	--	--	W	W
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	10,800	10,800
Other	66,700	51,800 <sup>r</sup>	(5)	54,800	284,000	458,000 <sup>r</sup>
Grand total	689,000 <sup>r</sup>	442,000 <sup>r</sup>	(6)	54,800	391,000 <sup>r</sup>	1,580,000 <sup>r</sup>
Stocks, January 31, 2011	322,000	354,000	2,080	(6)	(6)	1,570,000 <sup>r</sup>
2011, February:						
Steel:						
Carbon	33,500	W	--	--	W	33,500
High-strength low-alloy	62,900	7,320	--	--	--	70,200
Stainless and heat-resisting	161,000	63,700	--	W	6,180	231,000
Full alloy	258,000	297,000	--	--	W	555,000
Tool	W	W	--	--	--	W
Total	515,000	368,000	--	W	6,180	890,000
Cast irons (gray, malleable, and ductile iron)	W	W	--	--	W	W
Superalloys	33,800	W	--	W	98,200	132,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	W	W
Other alloys	49	W	--	--	--	49
Mill products made from metal powder <sup>3</sup>	--	--	--	--	W	W
Cemented carbides and related products <sup>4</sup>	--	--	--	--	6	6
Chemical and ceramic uses:						
Pigments	--	--	(5)	--	243	243
Catalysts	77,300	--	(5)	--	W	77,300
Other chemicals	--	--	--	--	W	W

See footnotes at end of table.

TABLE 3—Continued  
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, February—Continued:						
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	10,800	10,800
Other	66,700	53,100	(5)	31,800	289,000	441,000
Grand total	693,000	421,000	(6)	31,800	405,000	1,550,000
Stocks, February 28, 2011	362,000	288,000	2,080	(6)	(6)	1,520,000

<sup>1</sup>Revised. 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>Includes ingot, wire, rod, and sheet.

<sup>4</sup>Includes construction, mining, oil and gas, metalworking machinery.

<sup>5</sup>Withheld to avoid disclosing company proprietary data; included in "Miscellaneous and unspecified uses: Other" of the "Other" category.

<sup>6</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	January	December	January
Argentina	17,200	--	--	--
Australia	--	--	--	800
Austria	440,000	10,100	168,000	37,300
Belgium	9,610,000	851,000	920,000	1,160,000
Brazil	310,000	--	78,100	20,000
Canada	1,150,000	53,900	94,300	147,000
China	5,280,000	636,000	402,000	352,000
Finland	--	--	--	48,000
France	16,600	--	12,100	12,400
Germany	143,000	--	--	12,300
Hong Kong	1,140	--	1,140	--
India	924,000	--	140,000	105,000
Italy	13,200	--	--	--
Japan	2,630,000	133,000	261,000	333,000
Korea, Republic of	805,000	72,700	54,900	188,000
Luxembourg	11,500	--	--	--
Mexico	5,040,000	334,000	510,000	695,000
Netherlands	8,210,000	479,000	453,000	597,000
New Caledonia	1,050	--	--	--
Panama	2,360	--	--	--
Poland	194	--	--	--
Slovenia	24,600	--	--	--
South Africa	520,000	--	--	--
Spain	24,600	--	--	--
Sweden	12,100	--	11,900	12,000
Taiwan	67,900	--	33,800	17,600
Thailand	19,200	--	--	--
United Arab Emirates	154,000	--	24,800	12,600
United Kingdom	5,000,000	323,000	668,000	576,000
Venezuela	940	940	--	--
Vietnam	149,000	--	80,500	14,900
Total	40,600,000	2,890,000	3,910,000	4,340,000

-- 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	January	December	January
Argentina	13,300	--	--	--
Australia	628	--	--	--
Canada	677,000	43,100	50,400	70,200
Colombia	1,170	--	--	--
Denmark	372	--	--	--
India	36,600	--	--	--
Japan	12,700	--	12,700	--
Korea, Republic of	11,200	--	--	--
Mexico	12,900	2,800	--	6,180
Netherlands	196,000	--	40,200	37,600
Philippines	939	--	--	--
Singapore	14,300	--	--	--
Turkey	103	--	--	11,800
Total	978,000	45,900	103,000	126,000

-- 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			January 2011		
	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	847,000	515,000	\$8,580
Ore and concentrates other	13,500,000	6,610,000	202,000	1,290,000	567,000	22,400
Molybdenum chemicals:						
Oxides and hydroxides	508,000	NA	12,200	--	--	--
Molybdates of ammonium	1,590,000	905,000	28,600	20,000	11,300	447
Molybdates (all others)	62,600	23,300	1,510	6,790	2,680	193
Molybdenum orange	349,000	NA	2,730	25,900	NA	224
Ferromolybdenum	5,330,000	3,560,000	130,000	569,000	379,000	14,200
Molybdenum powders	232,000	221,000	10,100	33,300	32,400	1,510
Molybdenum unwrought	307,000	301,000	10,200	48,900	46,500	1,720
Molybdenum waste and scrap	703,000	682,000	26,900	82,900	74,100	3,060
Molybdenum wire	19,300	NA	3,030	1,010	NA	170
Molybdenum other	582,000	NA	37,500	30,700	NA	3,080
Total	33,500,000	XX	576,000	2,960,000	XX	55,500

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.