

# Mineral Industry Surveys

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## TUNGSTEN IN NOVEMBER 2007

U.S. net production of intermediate tungsten products, including metal powder and tungsten carbide powder, during January through November 2007, was 4% higher than net production during the same period in 2006 (revised), according to the U.S. Geological Survey.

Total U.S. reported consumption of ferrotungsten, tungsten metal powder, tungsten carbide powder, tungsten scrap, and other tungsten materials during January through November 2007 was slightly greater than that consumed during the same period in 2006 (revised). They were used to make alloys, cemented carbides, mill products, and other products, such as catalysts and pigments.

Data for U.S. imports and exports for August through October 2007 and October year-to-date are published in this issue.

### Update

Prices for tungsten ore concentrates, in dollars per metric ton unit from Metal Bulletin, are listed below. Prices in dollars per short ton unit were converted from metric-ton-unit prices and rounded to the nearest dollar. These prices represent combined prices for wolframite and scheelite ore concentrates with a minimum tungsten trioxide (WO<sub>3</sub>) content of 65%. The prices for December 1-31, 2007, are as follows:

Low—\$160/metric ton unit WO<sub>3</sub> (\$145/short ton unit WO<sub>3</sub>)  
High—\$170/metric ton unit WO<sub>3</sub> (\$154/short ton unit WO<sub>3</sub>)

TABLE 1  
U.S. SALIENT TUNGSTEN STATISTICS<sup>1</sup>

(Metric tons, tungsten content)

Period	Concentrate				Intermediate products				
	Reported consumption	Imports for consumption	Stocks, end of period Industry <sup>2</sup>	U.S. Government <sup>3</sup>	Reported scrap consumption	Net production <sup>4</sup>	Reported consumption <sup>5</sup>	Stocks, end of period Industry <sup>6</sup>	U.S. Government <sup>3</sup>
2006:									
November	W	256	W	22,900	343	650	958	761	266
December	W	289	W	22,900	353	646	960	827	266
January-December	W	2,290	XX	XX	4,370	8,060	12,000	XX	XX
2007:									
January	W	266	W	22,900	439	659	1,020	872	266
February	W	322	W	22,400	317	649	1,020	844	266
March	W	420	W	22,200	433	862	1,030	809	266
April	W	152	W	22,200	385	789	1,020	746	266
May	W	558	W	19,200	252	681	1,030	763	266
June	W	359	W	22,100	431	724	1,020	810	266
July	W	344	W	21,400	333	550	1,020	697	266
August	W	315	W	21,400	317	694	1,030	801	268
September	W	344	W	21,300	263	837	1,020	781	268
October	W	299	W	21,300	502	614	1,020	795	268
November	W	315	W	21,200	355	659	1,010	746	235
Total	W	3,690	XX	XX	4,030	7,720	11,200	XX	XX

W Withheld to avoid disclosing company proprietary data. 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>Reported by consumers.

<sup>3</sup>Data from Defense National Stockpile Center. Data through June 2007 include material committed for sale pending shipment; data from July 2007 onward are uncommitted material only.

<sup>4</sup>Net production of tungsten metal powder and tungsten carbide powder.

<sup>5</sup>Includes estimates and scrap.

<sup>6</sup>Data for tungsten metal powder and tungsten carbide powder reported by producers.

TABLE 2  
U.S. PRODUCTION, CONSUMPTION, AND STOCKS OF  
AMMONIUM PARATUNGSTATE, BY MONTH<sup>1</sup>

(Metric tons, tungsten content)

Period	Production	Consumption	Stocks, end of period <sup>2</sup>
2006:			
November	W	900	67
December	W	866	W
January-December	W	11,300	XX
2007:			
January	W	941	98
February	W	886	83
March	W	1,140	37
April	W	(3)	101
May	W	(3)	110
June	W	1,230	94
July	W	(3)	W
August	W	1,050	W
September	W	1,100	W
October	W	1,010	W
November	W	958	W
Total	W	10,800	XX

W Withheld to avoid disclosing company proprietary data.

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>Producers and consumers.

<sup>3</sup>Withheld to avoid disclosing company proprietary data; included in "Total."

TABLE 3  
U.S. PRODUCTION AND STOCKS OF TUNGSTEN PRODUCTS<sup>1</sup>

(Metric tons, tungsten content)

Product <sup>3</sup>	Net production <sup>2</sup>				Stocks at end of period		
	2007				2007		
	2006	October	November	Year to date	2006	October	November
Metal powder	3,260	240	335	3,560	411	394	373
Tungsten carbide powder	4,800	374	324	4,160	415	401	373
Total	8,060	614	659	7,720	827	795	746

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

<sup>2</sup>Receipts plus gross production less quantity used to make other products in table.

<sup>3</sup>Data for cast and crystalline tungsten carbide powder and tungsten chemicals are withheld to avoid disclosing company proprietary data; not included in "Total."

TABLE 4  
U.S. REPORTED CONSUMPTION OF TUNGSTEN, BY END USE<sup>1,2,3</sup>

(Metric tons, tungsten content)

End use	2007		
	October	November	Year to date
Steels	27	23	250
Superalloys	W	W	W
Other alloys (excludes steels and superalloys) <sup>4</sup>	W	W	W
Cemented carbides <sup>5</sup>	543	543	6,000
Mill products made from metal powder	W	W	W
Chemical uses	W	W	W
Miscellaneous and unspecified	448	446	4,980
Total	1,020	1,010	11,200

W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

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

<sup>2</sup>Does not include materials used in making primary tungsten products.

<sup>3</sup>Includes estimates.

<sup>4</sup>Includes welding and hard-facing rods and materials, wear- and corrosion-resistant alloys, and nonferrous alloys.

<sup>5</sup>Includes diamond tool matrices, cemented and sintered carbides, and cast carbide dies or parts.

TABLE 5  
U.S. REPORTED CONSUMPTION AND CONSUMER STOCKS OF TUNGSTEN MATERIALS<sup>1</sup>

(Metric tons, tungsten content)

Period	Ferro- tungsten	Tungsten metal powder	Tungsten carbide powder	Tungsten scrap	Other tungsten materials <sup>2</sup>	Total
<b>Consumption:</b>						
<b>2006:</b>						
November	20	W	546	W	6	958
December	20	W	534	W	6	960
January-December	245	W	6,490	W	72	12,000
<b>2007:</b>						
January	20	W	538	W	6	1,020
February	21	W	532	W	6	1,020
March	20	W	536	W	6	1,030
April	19	W	531	W	6	1,020
May	19	W	540	W	6	1,030
June	20	W	535	W	6	1,020
July	20	W	532	W	6	1,020
August	20	W	534	W	6	1,030
September	20	W	528	W	6	1,020
October	20	W	533	W	6	1,020
November	20	W	529	W	6	1,010
January-November	216	W	5,870	W	66	11,200
<b>Stocks:</b>						
<b>2006:</b>						
November	20	26	354	32	9	440
December	18	26	355	34	9	442
<b>2007:</b>						
January	19	28	361	36	9	452
February	17	28	356	31	9	441
March	19	14	353	38	9	433
April	18	13	360	36	9	436
May	18	13	360	34	9	434
June	17	12	357	33	9	428
July	17	14	356	28	9	423
August	16	13	349	27	9	414
September	14	13	352	27	9	415
October	16	13	359	28	9	425
November	15	13	356	27	9	419

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

<sup>1</sup>Includes estimates.

<sup>2</sup>Includes tungsten chemicals.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF TUNGSTEN, BY COUNTRY<sup>1</sup>

(Metric tons, tungsten content)

Period and country of origin	Ores and concentrates	Ammonium tungstates	Ferro-tungsten	Metal powder	Tungsten carbide powder	Other <sup>2</sup>	Total	Total, year to date
2006	2,290	2,900	265	1,740	1,600	1,770	10,600	XX
2007:								
August	315	170	--	127	153	160	925	8,210
September	344	193	8	53	67	211	877	9,080
October								
Austria	--	--	--	--	--	3	3	22
Belgium	--	--	--	--	(3)	1	1	8
Bolivia	88	--	--	--	--	--	88	1,120
Brazil	--	--	--	--	--	--	--	134
Canada	68	--	--	(3)	14	--	83	1,020
China	--	18	30	14	62	58	182	3,990
Czech Republic	--	--	--	--	1	(3)	1	5
France	--	--	--	--	(3)	1	1	12
Germany	--	--	--	19	10	6	35	801
Hong Kong	--	--	--	--	--	(3)	(3)	10
Hungary	--	--	--	--	--	(3)	(3)	4
India	--	--	--	--	4	(3)	4	36
Ireland	--	--	--	--	--	2	2	6
Israel	--	--	--	65	15	3	83	616
Italy	--	--	--	--	--	--	--	11
Japan	--	--	--	--	--	3	3	44
Korea, Republic of	--	--	--	16	(3)	(3)	17	156
Mexico	3	--	--	--	--	(3)	3	31
Mongolia	25	--	--	--	--	--	25	77
Netherlands	--	--	--	--	--	--	--	36
Peru	37	--	--	--	--	--	37	345
Portugal	62	--	--	--	--	--	62	578
Russia	--	--	--	--	--	--	--	123
Rwanda	--	--	--	--	--	--	--	259
Singapore	--	--	--	--	--	2	2	25
South Africa	--	--	--	--	--	--	--	14
Sweden	--	--	--	--	4	(3)	4	23
Thailand	17	--	--	--	--	--	17	128
Uganda	--	--	--	--	--	--	--	14
United Kingdom	--	--	--	(3)	--	(3)	(3)	21
Uzbekistan	--	--	--	--	--	--	--	64
Vietnam	--	--	--	--	--	--	--	10
Other	--	--	--	--	--	1	1	3
Total	299	18	30	114	112	81	654	9,740
Total, year to date	3,380	2,160	247	1,270	1,230	1,450	9,740	XX

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>Includes other unwrought tungsten, wrought tungsten, calcium and other tungstates, tungsten oxides, tungsten chlorides, other tungsten compounds, ash and residues containing mainly tungsten, and other mixtures of inorganic compounds containing tungsten. Tungsten content estimated in part.

<sup>3</sup>Less than ½ unit.

Note: Imports of waste and scrap in October 2007 totaled 17 metric tons, tungsten content, to give a year-to-date total of 1,130 metric tons, tungsten content.

Source: U.S. Census Bureau.

TABLE 7  
U.S. EXPORTS OF TUNGSTEN, BY COUNTRY<sup>1</sup>

(Metric tons, tungsten content)

Period and country of destination	Ores and concentrates <sup>2</sup>	Ammonium tungstates	Metal powder <sup>2</sup>	Tungsten carbide powder	Other <sup>3</sup>	Total	Total, year to date
2006	130	350	959	1,010	2,670	5,130	XX
2007:							
August	--	46	84	117	68	315	2,980
September	17	82	62	91	72	324	3,310
October:							
Australia	--	--	1	(4)	(4)	1	30
Austria	--	--	--	--	--	--	2
Bolivia	--	--	--	--	--	--	17
Brazil	1	--	2	--	1	3	49
Canada	--	--	6	4	43	52	329
Chile	--	--	(4)	--	--	(4)	3
China	--	--	5	(4)	1	6	62
Colombia	--	--	--	--	(4)	(4)	4
Costa Rica	--	--	--	--	2	2	4
Czech Republic	--	--	44	--	1	45	74
Denmark	--	--	--	--	--	--	9
France	--	3	3	17	(4)	23	147
Germany	--	47	44	24	17	132	1,450
Hungary	--	--	--	--	4	4	15
India	--	--	(4)	3	1	4	33
Ireland	--	--	--	1	--	1	7
Israel	--	--	--	--	1	1	44
Italy	--	--	(4)	--	(4)	(4)	18
Japan	--	--	1	2	15	19	114
Korea, Republic of	--	--	1	(4)	(4)	1	10
Luxembourg	--	--	--	--	--	--	2
Malaysia	(4)	--	--	(4)	--	(4)	13
Mexico	--	--	37	(4)	2	39	303
Netherlands	--	--	--	--	23	23	107
Peru	--	--	(4)	--	--	(4)	8
Philippines	--	--	--	--	--	--	13
Singapore	--	--	2	(4)	(4)	3	49
South Africa	--	--	--	19	--	19	71
Spain	--	--	(4)	--	1	2	17
Sweden	--	--	--	--	1	1	92
Switzerland	--	--	(4)	--	--	(4)	7
Taiwan	--	--	2	2	(4)	3	109
United Kingdom	--	--	2	44	2	48	475
Venezuela	--	--	--	--	--	--	39
Other	--	--	(4)	(4)	1	1	16
Total	1	50	150	117	117	435	3,740
Total, year to date	108	632	884	1,040	1,080	3,740	XX

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>Tungsten content estimated from reported gross weight.

<sup>3</sup>Includes unwrought tungsten, including bars and rods obtained simply by sintering, wrought tungsten, ferrotungsten, and other tungstates. Tungsten content estimated in part.

<sup>4</sup>Less than ½ unit.

Note: Estimated exports of waste and scrap in October 2007 totaled 185 metric tons, tungsten content, to give a year-to-date total of 1,390 metric tons, tungsten content.

Source: U.S. Census Bureau.