

# Mineral Industry Surveys

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## TUNGSTEN IN OCTOBER 2010

Total U.S. net production of intermediate tungsten products, including metal powder and tungsten carbide powder, was 67% more during January through October 2010 than net production during the same period in 2009, 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 October 2010 was 48% more than consumption during the same period in 2009. These materials were used to make alloys, cemented carbides, mill products, and other products, such as catalysts and pigments.

Data for U.S. imports and exports of tungsten for January through September 2010 and full year 2009 totals by material are published in this issue.

### Prices

Selected prices from Metal Bulletin for October 2010 are listed below. U.S. ammonium paratungstate prices in dollars per

metric ton unit were converted from short-ton-unit prices and rounded to the nearest dollar. Prices for tungsten ore concentrates represent combined prices for wolframite and scheelite concentrates with a minimum tungsten trioxide (WO<sub>3</sub>) content of 65%. Concentrate prices in dollars per short ton unit were converted from metric-ton-unit prices and rounded to the nearest dollar.

Ammonium paratungstate, U.S. free market:

Low—\$237/metric ton unit WO<sub>3</sub> (\$215/short ton unit WO<sub>3</sub>)  
High—\$268/metric ton unit WO<sub>3</sub> (\$243/short ton unit WO<sub>3</sub>)

Concentrates:

Low—\$140/metric ton unit WO<sub>3</sub> (\$127/short ton unit WO<sub>3</sub>)  
High—\$160/metric ton unit WO<sub>3</sub> (\$145/short ton unit WO<sub>3</sub>)

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

(Metric tons, tungsten content)

Period	Concentrate				Reported scrap consumption	Intermediate products			
	Reported consump- tion	Imports for consumption	Stocks, end of period Industry <sup>2</sup>	U.S. Gov- ernment <sup>3</sup>		Net production <sup>4</sup>	Reported consump- tion <sup>5</sup>	Stocks, end of period Industry <sup>6</sup>	U.S. Gov- ernment <sup>3</sup>
2009:									
October	W	289	W	19,500	392	665	722 <sup>r</sup>	750	172
November	W	150	W	19,300	371	575	687 <sup>r</sup>	727	172
December	W	306	W	19,000	356	589	703 <sup>r</sup>	682	171
January-December	W	3,590	XX	XX	3,460	5,300	7,180 <sup>r</sup>	XX	XX
2010:									
January	W	173	W	18,800	418	584	856 <sup>r</sup>	674	171
February	W	249	W	18,600	303	588	786 <sup>r</sup>	749	171
March	W	181	W	18,300	455	689	838 <sup>r</sup>	739	171
April	W	279	W	17,700	369	638	865 <sup>r</sup>	676	169
May	W	160	W	17,700	426	743	847 <sup>r</sup>	745	169
June	W	246	W	17,700	410	756	902 <sup>r</sup>	708	169
July	W	221	W	17,000	(7)	661	872 <sup>r</sup>	686	169
August	W	366	W	17,000	(7)	796	879 <sup>r</sup>	701	169
September	W	172	W	17,000	498	716	877 <sup>r</sup>	744	171
October	W	NA	W	17,000	360	722	876	822	171
Total	W	2,050	XX	XX	4,310	6,890	8,600	XX	XX

<sup>r</sup>Revised. NA Not available. 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 the Defense Logistics Agency, DLA Strategic Materials (formerly Defense National Stockpile Center). Data 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.

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

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>
2009:			
October	W	(3)	W
November	W	667	97
December	W	(3)	100
January-December	W	6,860	XX
2010:			
January	W	829	185
February	W	761	173
March	W	822	124
April	W	929	W
May	W	777	W
June	W	952	147
July	W	(3)	146
August	W	(3)	W
September	W	1,010	118
October	W	860	111
Total	W	8,660	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 "January-December" or "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		
	2009	2010		Year to date <sup>4</sup>	2009	2010	
		September	October			September	October
Metal powder	2,880	307	353	3,440	379	447	533
Tungsten carbide powder	2,420	409	369	3,450	304	298	289
Total	5,300	716	722	6,890	682	744	822

<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."

<sup>4</sup>May include revisions to prior months.

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

(Metric tons, tungsten content)

End use	2010		
	September	October	Year to date <sup>4</sup>
Steels	21	21	206
Superalloys	W	W	W
Other alloys (excludes steels and superalloys) <sup>5</sup>	W	W	W
Cemented carbides <sup>6</sup>	448 <sup>r</sup>	449	4,470
Mill products made from metal powder	W	W	W
Chemical uses	W	W	W
Miscellaneous and unspecified	408	406	3,920
Total	877 <sup>r</sup>	876	8,600

<sup>r</sup>Revised. 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>May include revisions to prior months.

<sup>5</sup>Includes welding and hard-facing rods and materials, wear- and corrosion-resistant alloys, and nonferrous alloys.

<sup>6</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
Consumption:						
2009:						
October	20	W	331 <sup>r</sup>	W	6	722 <sup>r</sup>
November	20	W	332 <sup>r</sup>	W	6	687 <sup>r</sup>
December	20	W	331 <sup>r</sup>	W	6	703 <sup>r</sup>
January-December	238	W	3,980 <sup>r</sup>	W	74	7,180 <sup>r</sup>
2010:						
January	20	W	438 <sup>r</sup>	W	6	856 <sup>r</sup>
February	20	W	437 <sup>r</sup>	W	6	786 <sup>r</sup>
March	20	W	438 <sup>r</sup>	W	6	838 <sup>r</sup>
April	20	W	440 <sup>r</sup>	W	6	865 <sup>r</sup>
May	21	W	437 <sup>r</sup>	W	8	847 <sup>r</sup>
June	20	W	441 <sup>r</sup>	W	9	902 <sup>r</sup>
July	20	W	439 <sup>r</sup>	W	9	872 <sup>r</sup>
August	20	W	440 <sup>r</sup>	W	8	879 <sup>r</sup>
September	20	W	440 <sup>r</sup>	W	11	877 <sup>r</sup>
October	20	W	441	W	9	876
Total	202	W	4,390	W	80	8,600
Stocks:						
2009:						
October	15	25	387	48	10	484
November	15	25	387	57	10	493
December	15	24	387	47	10	484
2010:						
January	15	24	387	46	10 <sup>r</sup>	482 <sup>r</sup>
February	15	24	387	50	10 <sup>r</sup>	485 <sup>r</sup>
March	15	23	387	49	10 <sup>r</sup>	484
April	15	25	387	57	10 <sup>r</sup>	494 <sup>r</sup>
May	15	24	387	53	21 <sup>r</sup>	500 <sup>r</sup>
June	15	28	387	49	18 <sup>r</sup>	498 <sup>r</sup>
July	15	29	386	51	15 <sup>r</sup>	495
August	16	28	386	54	13 <sup>r</sup>	496 <sup>r</sup>
September	16	26	386	46	10 <sup>r</sup>	484 <sup>r</sup>
October	17	26	386	45	11	484

<sup>r</sup>Revised. 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
2009	3,590	2,540	46	837	753	1,360	9,120	XX
2010:								
July	221	230	--	94	153	90	789	5,970
August	366	247	8	124	101	164	1,010	6,980
September:								
Australia	--	--	--	--	--	3	3	7
Austria	--	--	--	--	5	7	13	60
Belgium	--	--	--	--	4	1	5	42
Bolivia	87	--	--	--	--	--	87	753
Canada	--	--	--	1	15	--	16	119
China	--	351	11	28	125	284	799	4,500
Czech Republic	--	--	--	--	4	(3)	4	23
France	--	--	--	--	1	(3)	1	6
Germany	(3)	36	--	10	6	2	54	340
Hong Kong	--	--	--	--	16	(3)	16	54
Hungary	--	--	--	--	--	(3)	(3)	6
India	--	--	--	--	1	(3)	1	8
Ireland	--	--	--	--	--	--	--	62
Israel	--	--	--	33	9	--	42	388
Japan	--	--	--	1	(3)	2	2	46
Korea, Republic of	--	--	--	38	2	(3)	40	289
Luxembourg	--	--	--	--	--	--	--	5
Mexico	--	--	--	--	--	1	1	14
Mongolia	--	--	--	--	--	--	--	19
Netherlands	--	--	--	--	--	(3)	(3)	16
Peru	42	--	--	--	--	--	42	404
Portugal	10	--	--	--	--	--	10	479
Russia	--	--	--	--	--	1	1	6
Rwanda	--	--	--	--	--	--	--	53
Singapore	--	--	--	--	--	2	2	16
South Africa	--	--	--	--	--	11	11	43
Spain	20	--	--	1	--	--	20	139
Sweden	--	--	--	--	2	(3)	2	37
Taiwan	--	--	--	--	--	(3)	(3)	16
Thailand	13	--	--	--	--	--	13	78
Uganda	--	--	--	--	--	--	--	73
United Kingdom	--	--	--	--	(3)	(3)	(3)	41
Vietnam	--	14	--	--	--	--	14	33
Other	--	--	--	--	--	(3)	(3)	(3)
Total	172	401	11	112	189	316	1,200	8,180
Total, year to date	2,050	1,950	172	985	1,160	1,870	8,180	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 September 2010 totaled 72 metric tons, tungsten content, to give a year-to-date total of 1,160 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
2009	38	375	360	469	543	1,790	XX
2010:							
July	(4)	29	121	152	56	359	2,140
August	2	76	45	152	70	344	2,480
September:							
Argentina	--	--	(4)	--	(4)	(4)	4
Australia	--	--	10	(4)	(4)	10	33
Austria	--	--	--	13	--	13	52
Belgium	--	--	--	(4)	31	31	110
Brazil	--	--	2	(4)	2	4	40
Canada	--	--	8	10	13	30	310
Chile	--	--	(4)	--	--	(4)	4
China	--	--	2	2	5	9	45
Colombia	--	--	--	--	(4)	(4)	8
Czech Republic	--	--	--	6	3	9	39
France	--	--	--	(4)	--	(4)	24
Germany	9	51	19	33	15	126	1,350
Hong Kong	--	--	--	1	(4)	1	13
Hungary	--	--	--	--	4	4	57
India	(4)	--	2	1	(4)	4	41
Indonesia	--	--	--	--	3	3	20
Ireland	--	--	--	--	--	--	31
Israel	--	--	(4)	--	--	(4)	5
Italy	--	--	--	(4)	(4)	(4)	4
Japan	--	--	(4)	1	1	2	44
Korea, Republic of	--	--	(4)	--	(4)	(4)	11
Malaysia	--	--	--	--	2	2	5
Mexico	--	--	1	2	3	6	58
Netherlands	--	--	--	--	(4)	(4)	50
Peru	--	--	--	--	--	--	7
Saudi Arabia	--	--	(4)	(4)	--	1	8
Singapore	--	--	1	1	(4)	2	26
South Africa	--	--	(4)	7	--	8	66
Spain	--	--	--	--	(4)	(4)	6
Sweden	--	--	--	--	1	1	23
Switzerland	--	18	--	1	--	19	30
Taiwan	--	--	2	6	(4)	9	66
Thailand	--	--	--	--	(4)	(4)	3
United Kingdom	--	--	(4)	14	1	15	153
Venezuela	--	--	(4)	2	(4)	3	26
Vietnam	--	--	--	--	--	--	8
Other	(4)	--	(4)	(4)	1	2	19
Total	9	69	48	102	87	315	2,800
Total, year to date	267	429	624	820	659	2,800	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 September 2010 totaled 37 metric tons, tungsten content, to give a year-to-date total of 468 metric tons, tungsten content.

Source: U.S. Census Bureau.