

# Mineral Industry Surveys

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## TUNGSTEN IN OCTOBER 2003

U.S. net production of intermediate tungsten products, including metal powder and tungsten carbide powder produced from metal powder, in January through October 2003 was 19% lower than net production during the same period in 2002, 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 2003 was approximately the same as that consumed during the same period in 2002. These materials were used to make alloys, cemented carbides, mill products, catalysts, and pigments.

Data for U.S. imports and exports for October 2003 will be published in a subsequent 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 ( $WO_3$ ) content of 65%. The prices for November 1-30, 2003, are as follows:

Low—\$42/metric ton unit  $WO_3$  (\$38/short ton unit  $WO_3$ )  
High—\$50/metric ton unit  $WO_3$  (\$45/short ton unit  $WO_3$ )

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

(Metric tons, tungsten content)

Period	Concentrate				Reported scrap consumption	Intermediate products			
	Reported consumption	Imports for consumption	Stocks, end of period			Net production <sup>4</sup>	Reported consumption <sup>5</sup>	Stocks, end of period	
			Industry <sup>2</sup>	U.S. Government <sup>3</sup>			Industry <sup>6</sup>	U.S. Government <sup>3</sup>	
2002:									
October	W	341	W	30,100	382	1,170	836	705	975
November	W	509	W	30,100	346	1,160	816	733	948
December	W	600	W	30,100	360	949	750	666	947
January-December	W	4,090	XX	XX	4,270	12,000	9,300	XX	XX
2003:									
January	W	250	W	29,800	362	1,000	788	674	927
February	W	253	W	29,800	403	965	750	718	927
March	W	474	W	29,800	476	1,120	777	779	913
April	W	377	W	29,800	399	1,110 <sup>r</sup>	863	785	894
May	W	679	W	29,600	312	1,120	904	747 <sup>r</sup>	808
June	W	365	W	29,600	293 <sup>r</sup>	574 <sup>r</sup>	719 <sup>r</sup>	722 <sup>r</sup>	784
July	W	463	W	29,600	301 <sup>r</sup>	524 <sup>r</sup>	735 <sup>r</sup>	655 <sup>r</sup>	759
August	W	427	W	29,500	329 <sup>r</sup>	515 <sup>r</sup>	700 <sup>r</sup>	636 <sup>r</sup>	759
September	W	530	W	29,500	253 <sup>r</sup>	567 <sup>r</sup>	720 <sup>r</sup>	661 <sup>r</sup>	767
October	W	NA	W	29,500	380	548	711	681	767
Total	W	NA	XX	XX	3,510	8,050	7,670	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 Defense National Stockpile Center. Includes material committed for sale pending shipment.

<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>
2002:			
October	W	798	109
November	W	804	85
December	W	W	68
January-December	W	8,860	XX
2003:			
January	W	776	W
February	W	750	61
March	W	851	73
April	W	W	44
May	W	724	38
June	W	710 <sup>r</sup>	59 <sup>r</sup>
July	W	W	45 <sup>r</sup>
August	W	W	49 <sup>r</sup>
September	W	839 <sup>r</sup>	42 <sup>r</sup>
October	W	846	36
Total <sup>3</sup>	W	5,500	XX

<sup>r</sup>Revised. 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>Does not include withheld data.

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		
	2003				2003		
	2002	September <sup>r</sup>	October	Year to date	2002	September <sup>r</sup>	October
Metal powder	7,970	240	224	4,830	427	408	414
Tungsten carbide powder (made from metal powder)	4,070	327	324	3,230	239	253	267
Total	12,000	567	548	8,050	666	661	681

<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>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	2003		
	September	October	Year to date
Steels	24	21	219
Superalloys	30	28	270
Other alloys (excludes steels and superalloys) <sup>4</sup>	W	W	W
Cemented carbides <sup>5</sup>	404	392	3,970
Mill products made from metal powder	W	W	W
Chemical uses	W	W	W
Miscellaneous and unspecified	263 <sup>r</sup>	269	3,210
Total	720 <sup>r</sup>	711	7,670

<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>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>2002:</b>						
October	22	W	403	W	6	836
November	22	W	403	W	6	816
December	23	W	405	W	6	750
January-December	274	W	4,840	W	76	9,300
<b>2003:</b>						
January	21	W	400	W	6	788
February	23	W	395	W	6	750
March	21	W	396	W	6	777
April	23	W	404	W	6	863
May	22	W	404	W	6	904
June	20	W	401	W	6	719 <sup>r</sup>
July	20	W	393	W	6	735 <sup>r</sup>
August	22	W	391	W	6	700 <sup>r</sup>
September	23	W	406	W	6	720 <sup>r</sup>
October	21	W	392	W	6	711
Total	216	W	3,980	W	60	7,670
<b>Stocks:</b>						
<b>2002:</b>						
October	26	22	273	26	9	356
November	21	27	278	22	9	356
December	18	26	293	23	9	368
<b>2003:</b>						
January	25	24	295	19	9	372
February	20	22	292	20	9	362
March	20	20	285	27	9	361
April	15	24	288	22	9	358
May	29	26	292	21	9	376
June	23	24	304	21	9	381
July	21	22	294	27	9	373
August	28	23	296	25	9	381
September	25	20	284	19	9	357
October	21	21	286	15	9	352

<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
2002	4,090	2,400	480	642	901	1,190 <sup>†</sup>	9,700 <sup>†</sup>	XX
2003:								
July	463	358	15	33	108	77	1,050	6,460
August:	427	367	15	122	92	88	1,110	7,570
September:								
Australia	--	--	--	--	--	--	--	10
Austria	--	--	--	--	--	2	2	42
Belgium	--	--	--	--	--	--	--	4
Bolivia	39	--	--	--	--	--	39	286
Canada	419	--	--	--	33	--	453	3,190
China	--	332	59	19	48	22	480	3,460
Czech Republic	--	--	--	--	(3)	(3)	(3)	1
France	--	--	--	--	(3)	(3)	(3)	4
Germany	--	19	--	25	7	7	58	357
Hong Kong	--	--	--	--	--	1	1	6
Hungary	--	--	--	--	--	1	1	4
Ireland	--	--	--	--	--	--	--	1
Israel	--	--	--	--	11	1	12	319
Italy	--	--	--	--	--	(3)	(3)	(3)
Japan	--	--	--	(3)	--	4	5	130
Kenya	--	--	--	--	--	--	--	11
Korea, Republic of	--	--	--	3	(3)	(3)	4	92
Luxembourg	--	--	--	--	--	--	--	7
Mongolia	--	--	--	--	--	--	--	10
Peru	--	--	--	--	--	--	--	22
Portugal	39	--	--	--	--	--	39	424
Russia	--	--	--	--	(3)	(3)	(3)	38
Rwanda	11	--	--	--	--	--	11	127
Singapore	--	--	--	--	--	2	2	7
Spain	--	--	--	--	--	--	--	(3)
Sweden	--	--	--	--	--	(3)	(3)	6
Taiwan	--	--	--	--	--	--	--	16
Tanzania	--	--	--	--	--	--	--	11
Thailand	--	--	--	--	--	--	--	32
Uganda	--	--	--	--	--	--	--	8
United Kingdom	--	--	--	--	--	(3)	(3)	53
Vietnam	22	--	--	--	--	--	22	22
Other	--	--	--	--	--	(3)	(3)	6
Total	530	352	59	48	101	40	1,130	8,700
Total, year to date	3,820	2,250	214	659	991	771	8,700	XX

<sup>†</sup>Revised. 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 1/2 unit.

Note: Imports of waste and scrap in September 2003 totaled 32 metric tons, tungsten content, to give a year-to-date total of 865 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
2002	94	69	496	1,250	1,050	2,960	XX
2003:							
July	1	--	144	107	94	345	2,790
August	2	5	157	136	112	412	3,200
September							
Australia	--	--	(4)	--	1	1	34
Belgium	--	--	--	(4)	(4)	(4)	37
Brazil	--	--	1	--	(4)	1	29
Canada	1	--	3	3	5	12	143
Chile	--	--	--	(4)	--	(4)	3
China	--	--	(4)	--	(4)	1	19
Colombia	--	--	--	--	(4)	(4)	1
Czech Republic	--	--	--	11	(4)	11	13
Egypt	--	--	--	--	--	--	1
Finland	--	--	--	--	--	--	1
France	--	--	1	1	(4)	2	178
Germany	--	--	16	10	13	40	1,100
Hong Kong	--	--	1	--	1	1	8
Hungary	--	--	--	--	(4)	(4)	1
India	--	--	--	(4)	1	1	249
Indonesia	--	--	--	--	--	--	1
Ireland	--	--	--	1	--	1	14
Israel	--	--	--	--	3	3	100
Italy	--	--	2	--	(4)	2	52
Japan	--	--	1	1	32	33	95
Korea, Republic of	--	--	(4)	4	(4)	4	26
Luxembourg	--	--	--	--	--	--	7
Malaysia	--	--	--	--	(4)	(4)	14
Mexico	--	--	--	--	27	27	183
Netherlands	--	--	--	(4)	3	3	81
New Zealand	--	--	(4)	--	--	(4)	3
Philippines	--	--	--	--	1	1	20
Poland	--	--	--	--	(4)	(4)	2
Singapore	--	--	(4)	--	(4)	1	14
Slovakia	--	--	--	--	(4)	(4)	5
South Africa	--	--	--	(4)	--	(4)	57
Spain	--	--	(4)	(4)	5	5	25
Sweden	--	--	(4)	--	(4)	1	216
Switzerland	--	--	(4)	1	3	4	10
Taiwan	--	--	2	--	16	18	217
Turkey	--	--	--	--	--	--	2
United Kingdom	--	--	5	30	3	38	442
Other	--	--	(4)	1	(4)	1	7
Total	1	--	34	65	114	213	3,410
Total, year to date	8	80	825	1,460	1,040	3,410	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 1/2 unit.

Note: Estimated exports of waste and scrap in September 2003 totaled 47 metric tons, tungsten content, to give a year-to-date total of 399 metric tons, tungsten content.

Source: U.S. Census Bureau.