

# Mineral Industry Surveys

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## TUNGSTEN IN NOVEMBER 2003

U.S. net production of intermediate tungsten products, including metal powder and tungsten carbide powder produced from metal powder, in January through November 2003 was 22% 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 November 2003 was slightly lower than 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 November 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 December 1-31, 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 consump- tion	Imports for consumption	Stocks, end of period			Net production <sup>4</sup>	Reported consump- tion <sup>5</sup>	Stocks, end of period	
			Industry <sup>2</sup>	U.S. Gov- ernment <sup>3</sup>			Industry <sup>6</sup>	U.S. Gov- ernment <sup>3</sup>	
2002:									
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	863	785	894
May	W	679	W	29,600	312	1,120	904	747	808
June	W	365	W	29,600	293	574	719	722	784
July	W	463	W	29,600	301	524	735	655	759
August	W	427	W	29,600 <sup>r</sup>	329	515	700	636	759
September	W	530	W	29,500	253	567	720	661	767
October	W	223	W	29,500	380	548	711	626 <sup>r</sup>	767
November	W	NA	W	29,400	357	558	711	628	767
Total	W	NA	XX	XX	3,870	8,610	8,380	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:			
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	59
July	W	W	45
August	W	W	49
September	W	839	42
October	W	846	36
November	W	835	W
Total <sup>3</sup>	W	6,330	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>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	October	November	Year to date	2002	October <sup>f</sup>	November
Metal powder	7,970	224	224	5,050	427	409	408
Tungsten carbide powder (made from metal powder)	4,070	324	334	3,560	239	217	220
Total	12,000	548	558	8,610	666	626	628

<sup>f</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		
	October	November	Year to date
Steels	21	21	240
Superalloys	28	24	294
Other alloys (excludes steels and superalloys) <sup>4</sup>	W	W	W
Cemented carbides <sup>5</sup>	392	403	4,380
Mill products made from metal powder	W	W	W
Chemical uses	W	W	W
Miscellaneous and unspecified	269	263	3,470
Total	711	711	8,380

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>						
2002:						
November	22	W	403	W	6	816
December	23	W	405	W	6	750
January-December	274	W	4,840	W	76	9,300
2003:						
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
July	20	W	393	W	6	735
August	22	W	391	W	6	700
September	23	W	406	W	6	720
October	21	W	392	W	6	711
November	20	W	404	W	6	711
Total	237	W	4,390	W	66	8,380
<b>Stocks:</b>						
2002:						
November	21	27	278	22	9	356
December	18	26	293	23	9	368
2003:						
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
November	29	21	287	22	9	367

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	9,700	XX
2003:								
August	427	367	15	122	92	88	1,110	7,570
September	530	352	59	48	101	41	1,130	8,700
October:								
Australia	--	--	--	--	--	--	--	10
Austria	--	--	--	--	(3)	1	1	44
Belgium	--	--	--	(3)	--	--	(3)	4
Bolivia	39	--	--	--	--	--	39	324
Canada	103	--	--	16	40	(3)	159	3,340
China	16	218	162	37	14	53	501	3,960
Czech Republic	--	--	--	--	--	(3)	(3)	1
France	--	--	--	--	(3)	(3)	(3)	4
Germany	--	19	--	36	6	4	65	421
Hong Kong	--	--	--	--	--	(3)	(3)	6
Hungary	--	--	--	--	--	(3)	(3)	4
Ireland	--	--	--	--	--	--	--	1
Israel	--	--	--	6	39	1	45	364
Italy	--	--	--	--	--	--	--	(3)
Japan	--	--	--	2	--	4	6	136
Kenya	--	--	--	--	--	--	--	11
Korea, Republic of	--	--	--	16	2	(3)	18	110
Luxembourg	--	--	--	--	--	--	--	7
Mongolia	--	--	--	--	--	--	--	10
Peru	--	--	--	--	--	--	--	22
Portugal	46	--	--	--	--	--	46	470
Russia	--	--	--	--	--	1	1	39
Rwanda	--	--	--	--	--	--	--	127
Singapore	--	--	--	--	--	1	1	9
Spain	--	--	--	--	--	--	--	(3)
Sweden	--	--	--	--	--	(3)	(3)	6
Taiwan	--	--	--	--	--	(3)	(3)	16
Tanzania	--	--	--	--	--	--	--	11
Thailand	19	--	--	--	--	--	19	51
Uganda	--	--	--	--	--	--	--	8
United Kingdom	--	--	--	--	1	(3)	1	54
Vietnam	--	--	--	--	--	--	--	22
Other	--	--	--	--	(3)	(3)	(3)	7
Total	223	237	162	112	102	67	904	9,600
Total, year to date	4,040	2,490	377	771	1,090	837	9,600	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 1/2 unit.

Note: Imports of waste and scrap in October 2003 totaled 22 metric tons, tungsten content, to give a year-to-date total of 887 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:							
August	2	5	157	136	112	412	3,200
September	1	--	34	65	114	213	3,410
October:							
Australia	--	--	(4)	(4)	(4)	1	35
Belgium	--	--	(4)	(4)	6	7	44
Brazil	--	--	(4)	1	14	15	44
Canada	--	--	2	7	5	15	157
Chile	--	--	(4)	--	--	(4)	3
China	--	--	(4)	--	(4)	(4)	19
Colombia	--	--	--	--	(4)	(4)	1
Czech Republic	--	--	--	--	1	1	14
Egypt	--	--	--	--	--	--	1
Finland	--	--	--	--	--	--	1
France	(4)	--	1	6	2	10	188
Germany	--	--	10	37	5	53	1,160
Hong Kong	--	--	--	--	1	1	8
Hungary	--	--	--	--	1	1	2
India	--	--	97	(4)	1	98	347
Indonesia	--	--	(4)	--	--	(4)	1
Ireland	(4)	--	--	(4)	(4)	1	14
Israel	--	--	--	--	1	1	101
Italy	--	--	1	1	14	16	69
Japan	--	--	1	3	27	31	126
Korea, Republic of	--	--	(4)	(4)	(4)	1	26
Luxembourg	--	--	--	(4)	--	(4)	7
Malaysia	--	--	--	--	(4)	(4)	15
Mexico	--	--	(4)	--	25	26	209
Netherlands	--	--	3	--	(4)	3	84
New Zealand	--	--	--	--	(4)	(4)	3
Philippines	--	--	--	--	--	--	20
Poland	--	--	--	--	(4)	(4)	2
Singapore	--	--	1	(4)	(4)	1	15
Slovakia	--	--	--	--	(4)	(4)	5
South Africa	--	--	--	--	--	--	57
Spain	--	--	(4)	--	2	2	27
Sweden	--	--	(4)	(4)	1	1	218
Switzerland	--	--	(4)	--	--	(4)	10
Taiwan	--	--	2	--	18	19	236
Turkey	--	--	--	--	--	--	2
United Kingdom	(4)	--	11	31	8	50	492
Other	--	--	(4)	(4)	(4)	1	8
Total	1	--	132	89	134	356	3,770
Total, year to date	9	80	957	1,550	1,170	3,770	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 October 2003 totaled 45 metric tons, tungsten content, to give a year-to-date total of 444 metric tons, tungsten content.

Source: U.S. Census Bureau.