TUNGSTEN

(Data in metric tons of tungsten content unless otherwise noted)

Domestic Production and Use: The last reported U.S. production of tungsten concentrates was in 1994. In 2005, approximately eight companies in the United States processed tungsten concentrates, ammonium paratungstate, tungsten oxide, and/or scrap to make tungsten powder, tungsten carbide powder, and/or tungsten chemicals. Approximately 65 industrial consumers were surveyed on a monthly or annual basis. Data reported by these consumers indicate that more than one-half of the tungsten consumed in the United States was used in cemented carbide parts for cutting and wear-resistant materials primarily in the metalworking, mining, oil- and gas-drilling, and construction industries. The remaining tungsten was consumed to make tungsten heavy alloys for applications requiring high density; electrodes, filaments, wires, and other components for electrical, electronic, heating, lighting, and welding applications; steels, superalloys, and wear-resistant alloys; and chemicals for various applications. The estimated value of apparent consumption in 2005 was $260 million.

Salient Statistics—United States:	2001	2002	2003	2004	2005[e]
Production:					
Mine	—	—	—	—	—
Secondary	5,390	4,380	4,130	4,000	4,600
Imports for consumption:					
Concentrate	2,680	4,090	4,690	2,310	2,000
Other forms	8,150	6,510	7,620	8,240	9,800
Exports:					
Concentrate	220	94	20	43	40
Other forms	4,860	3,220	5,070	3,730	6,100
Government stockpile shipments:					
Concentrate	2,200	1,140	710	979	2,300
Other forms	986	177	182	80	350
Consumption:					
Reported, concentrate	W	W	W	W	W
Apparent,[1] all forms	14,500	11,900	10,100	12,600	11,600
Price, concentrate, dollars per mtu WO_3,[2] average:					
U.S. spot market, Platts Metals Week	64	55	50	49	140
European market, Metal Bulletin	65	38	45	55	123
Stocks, industry, yearend:					
Concentrate	W	W	W	W	W
Other forms	2,110	1,610	1,820	1,780	2,200
Net import reliance[3] as a percentage of apparent consumption	64	69	63	73	70

Recycling: In 2005, the tungsten contained in scrap consumed by processors and end users represented approximately 40% of apparent consumption of tungsten in all forms.

Import Sources (2001-04): Tungsten contained in ores and concentrates, intermediate and primary products, wrought and unwrought tungsten, and waste and scrap: China, 46%; Canada, 20%; Germany, 6%; Portugal, 5%; and other, 23%.

Tariff: Item	Number	Normal Trade Relations[4] 12-31-05
Ore	2611.00.3000	Free.
Concentrate	2611.00.6000	Free.[5]
Ferrotungsten	7202.80.0000	5.6% ad val.
Tungsten powders	8101.10.0000	7.0% ad val.
Ammonium tungstate	2841.80.0010	5.5% ad val.
Tungsten carbide	2849.90.3000	5.5% ad val.
Tungsten oxide	2825.90.3000	5.5% ad val.

Depletion Allowance: 22% (Domestic), 14% (Foreign).

Government Stockpile: Sales of National Defense Stockpile tungsten began in 1999. Included in the data listed in the following table, as of September 30, 2005, are 5,750 tons of tungsten contained in uncommitted nonstockpile-grade ores and concentrates authorized for disposal.

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TUNGSTEN

Stockpile Status—9-30-05[6]

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2005	Disposals FY 2005
Ferrotungsten	105	—	105	[7]136	121
Metal powder	266	147	266	[7]136	147
Ores and concentrates	26,300	403	26,300	[7]2,270	2,250

Events, Trends, and Issues: World tungsten supply continued to be dominated by Chinese production and exports. Beginning in 1999 and continuing into 2005, the Chinese Government took several steps to control the release of Chinese tungsten into the world market. In addition to regulating tungsten production and the total volume of tungsten exports, the Government was gradually shifting the balance of export quotas towards value-added downstream tungsten materials and products. China was also becoming a large tungsten consumer. During the past decade, the growth in China's economy has resulted in a significant increase in consumption of tungsten materials to produce finished products for the domestic market, such as cemented carbide tools.

In 2005, inadequate supplies of tungsten concentrates within China combined with increased demand for tungsten materials in China and elsewhere resulted in steep increases in the prices of tungsten concentrates, ammonium paratungstate, and ferrotungsten. The sole Canadian tungsten mine restarted operations. Various companies worked towards developing tungsten deposits or reopening inactive tungsten mines in Australia, China, Peru, Russia, the United States, and Vietnam.

Health, safety, and environmental issues are becoming increasingly significant to metals such as tungsten.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[8]	Reserve base[8]
	2004	2005[e]		
United States	—	—	140,000	200,000
Austria	1,400	1,400	10,000	15,000
Bolivia	440	400	53,000	100,000
Canada	—	750	260,000	490,000
China	67,000	69,000	1,800,000	4,200,000
Korea, North	600	600	NA	35,000
Portugal	750	850	25,000	25,000
Russia	3,000	3,000	250,000	420,000
Other countries	510	510	360,000	700,000
World total (rounded)	73,700	76,500	2,900,000	6,200,000

World Resources: World tungsten resources are geographically widespread. China ranks number one in the world in terms of tungsten resources and reserves and has some of the largest deposits. Canada, Kazakhstan, Russia, and the United States also have significant tungsten resources.

Substitutes: Potential substitutes include cemented carbides based on molybdenum carbide and titanium carbide, ceramics, ceramic-metallic composites (cermets), diamond tools, and tool steels for cemented tungsten carbides; molybdenum for certain tungsten mill products; molybdenum steels for tungsten steels; lighting based on carbon nanotube filaments, induction technology, and light-emitting diodes (LEDs) for lighting based on tungsten electrodes or filaments; depleted uranium for tungsten alloys or unalloyed tungsten in weights and counterweights; and depleted uranium alloys for cemented tungsten carbides or tungsten alloys in armor-piercing projectiles. In some applications, substitution would result in increased cost or a loss in product performance.

[e]Estimated. NA Not available. W Withheld to avoid disclosing company proprietary data. — Zero.
[1]The sum of U.S. secondary production, as estimated from scrap consumption, and net import reliance.
[2]A metric ton unit (mtu) of tungsten trioxide (WO_3) contains 7.93 kilograms of tungsten.
[3]Defined as imports – exports + adjustments for Government and industry stock changes.
[4]Special tariff rates apply for Canada and Mexico. Tariffs for other countries for some items may be eliminated under special trade agreements.
[5]Special tariff rate effective on or before December 31, 2003, under number 9902.26.1100.
[6]See Appendix B for definitions.
[7]Actual quantity limited to remaining sales authority.
[8]See Appendix C for definitions.