TUNGSTEN

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

Domestic Production and Use: A mine in California restarted operations and made its first shipment of tungsten concentrates in October 2007. In 2007, approximately nine 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. One of these companies expanded the ammonium paratungstate capacity of its tungsten processing plant in Alabama. Approximately 60 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 2007 was $520 million.

Salient Statistics—United States:	2003	2004	2005	2006	2007[e]
Production:					
Mine	—	—	—	—	W
Secondary	4,130	4,000	4,650	4,460	4,400
Imports for consumption:					
Concentrate	4,690	2,310	2,080	2,290	4,100
Other forms	7,620	8,240	9,070	9,700	9,500
Exports:					
Concentrate	20	43	52	130	140
Other forms	5,070	3,730	5,890	6,310	5,900
Government stockpile shipments:					
Concentrate	710	979	2,310	3,120	1,900
Other forms	182	80	404	16	—
Consumption:					
Reported, concentrate	W	W	W	W	W
Apparent,[1] all forms	10,100	12,600	11,600	13,200	14,400
Price, concentrate, dollars per mtu WO_3,[2] average:					
U.S. spot market, Platts Metals Week	50	49	146	200	190
European market, Metal Bulletin	45	55	123	166	165
Stocks, industry, yearend:					
Concentrate	W	W	W	W	W
Other forms	1,820	1,780	2,300	2,130	1,600
Net import reliance[3] as a percentage of apparent consumption	63	73	68	68	70

Recycling: In 2007, the tungsten contained in scrap consumed by processors and end users represented approximately 31% of apparent consumption of tungsten in all forms.

Import Sources (2003-06): Tungsten contained in ores and concentrates, intermediate and primary products, wrought and unwrought tungsten, and waste and scrap: China, 43%; Canada, 16%; Germany, 9%; Portugal, 6%; and other, 26%.

Tariff: Item	Number	Normal Trade Relations[4] 12-31-07
Ore	2611.00.3000	Free.
Concentrate	2611.00.6000	37.5¢/kg tungsten content.
Tungsten oxide	2825.90.3000	5.5% ad val.
Ammonium tungstate	2841.80.0010	5.5% ad val.
Tungsten carbide	2849.90.3000	5.5% ad val.
Ferrotungsten	7202.80.0000	5.6% ad val.
Tungsten powders	8101.10.0000	7.0% ad val.

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

Prepared by **Kim B. Shedd [(703) 648-4974, kshedd@usgs.gov, fax: (703) 648-7757]**

TUNGSTEN

Government Stockpile:

Material	Stockpile Status—9-30-07[5] Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2007	Disposals FY 2007
Ferrotungsten	—	—	—	[6]136	—
Metal powder	268	—	268	136	34
Ores and concentrates	21,300	—	21,300	3,630	1,280

Events, Trends, and Issues: World tungsten supply was dominated by Chinese production and exports. China's Government restricted the amounts of tungsten that could be produced and exported, increased the resource tax on tungsten mining, banned foreign investment in Chinese mines, banned tolling of tungsten concentrate, introduced regulations to limit the building or expansion of tungsten processing plants, continued to shift the balance of export quotas towards value-added downstream tungsten materials and products, and imposed export duties on most tungsten materials. The growth in China's economy during the past decade has resulted in China becoming the world's largest tungsten consumer. To conserve its resources and meet increasing domestic demand, the Chinese Government was expected to continue to limit tungsten production and exports and to increase imports of tungsten.

Various companies worked towards developing tungsten deposits or reopening inactive tungsten mines in Australia, Canada, China, Kyrgyzstan, Mexico, Spain, Thailand, the United States, Uzbekistan, and Vietnam.

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

World Mine Production, Reserves, and Reserve Base: Reserves and reserve base estimates for Portugal were revised upward based on new information from that country.

	Mine production 2006	2007[e]	Reserves[7]	Reserve base[7]
United States	—	W	140,000	200,000
Austria	1,300	1,300	10,000	15,000
Bolivia	870	870	53,000	100,000
Canada	2,560	2,600	260,000	490,000
China	79,000	77,000	1,800,000	4,200,000
Korea, North	600	600	NA	35,000
Portugal	780	800	4,700	62,000
Russia	4,000	4,400	250,000	420,000
Other countries	1,680	2,040	420,000	740,000
World total (rounded)	90,800	89,600	2,900,000	6,300,000

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. net import reliance and secondary production, as estimated from scrap consumption.
[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]No tariff for Canada and Mexico. Tariffs for other countries for some items may be eliminated under special trade agreements.
[5]See Appendix B for definitions.
[6]Actual quantity limited to remaining inventory.
[7]See Appendix C for definitions.