

TUNGSTEN

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

Domestic Production and Use: One mine in California produced tungsten concentrates in 2010. 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. Nearly 60 industrial consumers were surveyed on a monthly or annual basis. Data reported by these consumers indicated 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 construction, metalworking, mining, and oil- and gas-drilling 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 2010 was \$500 million.

Salient Statistics—United States:	2006	2007	2008	2009	2010^e
Production:					
Mine	—	W	W	W	W
Secondary	4,490	4,330	4,790	3,550	5,300
Imports for consumption:					
Concentrate	2,290	3,880	3,990	3,590	3,000
Other forms	9,700	9,050	9,060	6,410	9,300
Exports:					
Concentrate	130	109	496	38	400
Other forms	6,310	5,950	5,480	2,730	4,000
Government stockpile shipments:					
Concentrate	3,120	1,740	1,470	688	2,100
Other forms	16	31	51	12	—
Consumption:					
Reported, concentrate	W	W	W	W	W
Apparent, ^{1,2} all forms	13,300	13,300	13,800	11,600	14,000
Price, concentrate, dollars per mtu WO ₃ , ³ average:					
U.S. spot market, Platts Metals Week	200	189	184	151	180
European market, Metal Bulletin	166	165	164	150	150
Stocks, industry, yearend:					
Concentrate	W	W	W	W	W
Other forms	2,110	1,960	2,200	2,190	2,500
Net import reliance ⁴ as a percentage of apparent consumption	67	67	60	68	68

Recycling: In 2010, the tungsten contained in scrap consumed by processors and end users represented approximately 37% of apparent consumption of tungsten in all forms.

Import Sources (2006–09): Tungsten contained in ores and concentrates, intermediate and primary products, wrought and unwrought tungsten, and waste and scrap: China, 43%; Canada, 9%; Germany, 9%; Bolivia, 8%; and other, 31%.

Tariff: Item	Number	Normal Trade Relations⁵ 12-31-10
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).

TUNGSTEN

Government Stockpile:

Material	Stockpile Status—9-30-10 ⁶			
	Uncommitted inventory	Authorized for disposal	Disposal plan FY 2010	Disposals FY 2010
Metal powder	171	171	136	—
Ores and concentrates	17,000	17,000	3,630	2,670

Events, Trends, and Issues: World tungsten supply is dominated by Chinese production and exports. China's Government regulates its tungsten industry by limiting the number of exploration, mining, and export licenses; limiting or forbidding foreign investment; imposing constraints on mining and processing; establishing quotas on production and exports; adjusting export quotas to favor value-added downstream materials and products; and imposing export taxes on tungsten materials. China is 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. In addition, the Chinese tungsten industry was investing in mining projects outside of China and increasing its use of tungsten scrap.

In 2010, global economic conditions improved and tungsten consumption increased compared with the low levels of 2009. The sole Canadian tungsten mine restarted production in October 2010 after being on care-and-maintenance status for 1 year. By November, a combination of recovering demand, Chinese controls on production and exports, and a temporary suspension of tungsten sales from Defense Logistics Agency, DLA Strategic Materials (formerly Defense National Stockpile Center) resulted in tightening supplies of concentrates and increased prices.

In recent years, the tungsten industry has increased its monitoring of proposed legislation and scientific research regarding the impact of tungsten on human health and the environment.

World Mine Production and Reserves: Reserves for Canada were revised upward based on company data; reserves for China were revised upward based on new information from that country.

	Mine production		Reserves ⁷
	2009	2010 ^e	
United States	W	W	140,000
Austria	900	1,000	10,000
Bolivia	1,000	1,100	53,000
Canada	2,000	300	120,000
China	51,000	52,000	1,900,000
Portugal	900	950	4,200
Russia	2,500	2,500	250,000
Other countries	3,000	3,300	400,000
World total (rounded)	² 61,300	² 61,000	2,900,000

World Resources: World tungsten resources are geographically widespread. China ranks first 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 for cemented tungsten carbides include cemented carbides based on molybdenum carbide and titanium carbide, ceramics, ceramic-metallic composites (cermets), diamond tools, and tool steels. Potential substitutes for other applications are as follows: molybdenum for certain tungsten mill products; molybdenum steels for tungsten steels; lighting based on carbon nanotube filaments, induction technology, and light-emitting diodes 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.

^eEstimated. W Withheld to avoid disclosing company proprietary data. — Zero.

¹The sum of U.S. net import reliance and secondary production, as estimated from scrap consumption.

²Excludes U.S. production.

³A metric ton unit (mtu) of tungsten trioxide (WO₃) contains 7.93 kilograms of tungsten.

⁴Defined as imports – exports + adjustments for Government and industry stock changes.

⁵No tariff for Canada and Mexico. Tariffs for other countries for some items may be eliminated under special trade agreements.

⁶See Appendix B for definitions.

⁷See Appendix C for resource/reserve definitions and information concerning data sources.