TUNGSTEN

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

Domestic Production and Use: A tungsten mine in California produced concentrates in 2013. 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. Sixty percent 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 2013 was approximately $800 million.

Salient Statistics—United States:	2009	2010	2011	2012	2013[e]
Production:					
Mine	NA	NA	NA	NA	NA
Secondary	3,690	5,680	11,000	9,190	8,300
Imports for consumption:					
Concentrate	3,590	2,740	3,640	3,650	4,000
Other forms	6,410	9,690	9,600	8,060	8,100
Exports:					
Concentrate	38	276	169	203	840
Other forms	2,730	4,350	6,960	6,530	7,200
Government stockpile shipments:					
Concentrate	688	2,060	1,180	1,780	2,100
Other forms	12	(1)	46	(1)	—
Consumption:					
Reported, concentrate	W	4,820	W	W	W
Apparent,[2, 3] all forms	11,600	15,500	18,100	15,000	13,900
Price, concentrate, dollars per mtu WO_3,[4] average:					
U.S. spot market, Platts Metals Week	151	183	248	358	360
European market, Metal Bulletin	150	150	150	NA	NA
Stocks, industry, yearend:					
Concentrate	W	W	W	W	W
Other forms	2,210	2,530	W	W	W
Net import reliance[5] as a percentage of apparent consumption	68	63	40	39	41

Recycling: In 2013, the tungsten contained in scrap consumed by processors and end users represented approximately 50% of apparent consumption of tungsten in all forms.

Import Sources (2009–12): Tungsten contained in ores and concentrates, intermediate and primary products, wrought and unwrought tungsten, and waste and scrap: China, 45%; Bolivia, 8%; Germany, 5%; Portugal, 5%; and other, 37%.

Tariff: Item	Number	Normal Trade Relations[6] 12–31–13
Ores	2611.00.3000	Free.
Concentrates	2611.00.6000	37.5¢/kg tungsten content.
Tungsten oxides	2825.90.3000	5.5% ad val.
Ammonium tungstates	2841.80.0010	5.5% ad val.
Tungsten carbides	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).

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Government Stockpile:

Material	Stockpile Status—9–30–13[7] Uncommitted inventory	Authorized for disposal	Disposal plan FY 2013	Disposals FY 2013
Metal powder	125	125	35	—
Ores and concentrates	12,100	12,100	2,300	2,240

Events, Trends, and Issues: World tungsten supply was dominated by Chinese production and exports. China was also the world's leading tungsten consumer. China's Government has regulated 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. To conserve its resources and meet increasing domestic demand, the Chinese Government planned the following: to expand exploration and increase ore reserves in approved mines, to stop illegal mining and close small inefficient mines, to continue to use quotas to control tungsten mine production, to improve its tungsten-processing technology and increase tungsten recovery from ores and tailings, to limit the export of upstream tungsten materials, and to increase the development and sales of value-added downstream tungsten products.

In the next few years, mine production from outside China is expected to increase. Numerous companies worked to develop tungsten deposits or restart tungsten production from inactive mines in Asia, Australia, Europe, and North America. The amount, location, and timing of future production will depend on the companies' abilities to acquire funding. Increased production capacity for ammonium paratungstate and ferrotungsten outside China is also planned. Scrap will continue to be an increasingly important source of raw material for the tungsten industry, worldwide.

World Mine Production and Reserves: Reserves for Canada were revised upward based on company data; reserves for "Other countries" were revised upward based on company and Government data.

	Mine production 2012	Mine production 2013[e]	Reserves[8]
United States	NA	NA	140,000
Austria	800	800	10,000
Bolivia	1,270	1,200	53,000
Canada	2,190	2,200	290,000
China	64,000	60,000	1,900,000
Portugal	763	800	4,200
Russia	3,000	2,500	250,000
World total (rounded)	[3]75,700	[3]71,000	3,500,000

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), 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 or lead for tungsten or tungsten alloys in applications requiring high-density or the ability to shield radiation; and depleted uranium alloys or hardened steel 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.
[1]Less than ½ unit.
[2]The sum of U.S. net import reliance and secondary production.
[3]Does not include U.S. mine production.
[4]A metric ton unit (mtu) of tungsten trioxide (WO_3) contains 7.93 kilograms of tungsten.
[5]Defined as imports – exports + adjustments for Government and industry stock changes.
[6]No tariff for Canada. Tariffs for other countries for some items may be eliminated under special trade agreements.
[7]See Appendix B for definitions.
[8]See Appendix C for resource/reserve definitions and information concerning data sources.