TUNGSTEN

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

Domestic Production and Use: In 1997, little if any tungsten concentrate was produced from U.S. mines. Approximately 10 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. More than 70 industrial consumers were surveyed on a monthly or annual basis. Based on data reported by these consumers, approximately 80% of tungsten consumed in the United States went into making cemented carbide parts to be used as cutting and wear-resistant materials primarily in the metalworking, oil and gas drilling, mining, and construction industries. The remaining tungsten was consumed in making lamp filaments, electrodes, and other components for the electrical and electronics industries, 7%; tool steels, 6%; other steels, superalloys, and wear-resistant alloys, 6%; and chemicals for catalysts and pigments, 1%. The total estimated value of primary tungsten materials consumed in 1997 was $280 million.

Salient Statistics—United States:	1993	1994	1995	1996	1997[e]
Production, mine shipments	W	W	W	W	W
Imports for consumption, concentrate	1,720	2,960	4,660	4,190	4,700
Exports, concentrate	63	44	20	72	20
Government stockpile shipments, concentrate	—	—	—	—	—
Consumption: Reported, concentrate	[1]2,870	[1]3,630	6,320	5,420	7,100
Apparent, all forms	7,100	7,900	10,000	10,700	11,400
Price, concentrate, dollars per mtu WO_3,[2] average:					
U.S. spot market, Platt's Metals Week	42	45	62	66	66
European market, Metal Bulletin	35	42	64	53	47
Stocks, producer and consumer, yearend concentrate	636	955	675	613	600
Employment, mine and mill, number	33	35	46	58	60
Net import reliance[3] as a percent of apparent consumption	81	95	90	90	85

Recycling: During 1997, the quantity of scrap reprocessed into intermediates was about 2,400 tons, representing approximately 21% of apparent consumption of tungsten in all forms.

Import Sources (1993-96): China, 35%; Russia, 20%; Germany, 7%; Bolivia, 6%; and other, 32%.

Tariff: Item	Number	Most favored nation (MFN)[4] 12/31/97	Non-MFN[5] 12/31/97
Ore	2611.00.3000	Free	$1.10/kg W cont.
Concentrate	2611.00.6000	37.5¢/kg W cont.	$1.10/kg W cont.
Ferrotungsten	7202.80.0000	5.6% ad val.	35.0% ad val.
Tungsten powders	8101.10.0000	8.4% ad val.	58.0% ad val.
Ammonium tungstate	2841.80.0010	7.3% ad val.	49.5% ad val.
Tungsten carbide	2849.90.3000	9.0% ad val.	55.5% ad val.

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

Government Stockpile: In addition to the data shown below, the stockpile contained the following quantities of nonstockpile-grade tungsten materials (tons of tungsten content): ores and concentrates, 7,010; ferrotungsten, 533; metal powder, 151; and carbide powder, 51.

	Stockpile Status—9-30-97[6]				
Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 1997	Disposals FY 1997
Carbide powder	871	—	—	—	—
Ferrotungsten	385	—	—	—	—
Metal powder	710	—	—	—	—
Ore and concentrate	27,600	—	—	—	—

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TUNGSTEN

Events, Trends, and Issues: World demand for tungsten was strong in 1997 and was expected to be higher than that of 1996. Continued exports of tungsten materials from China and Russia have sustained an oversupply situation, kept prices low, and resulted in a significant decrease in mine production. The amount of tungsten concentrates remaining in stockpiles in China and Former Soviet Union countries and how long they will continue to contribute to world supply are concerns for the tungsten industry. Once the stockpiles are depleted, world mine production will have to increase to meet demand. How quickly mines can be brought back on line and whether mine production can meet demand once stockpiles are depleted will influence the future tungsten supply/demand balance.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[7]	Reserve base[7]
	1996	1997[e]		
United States	W	W	140,000	200,000
Australia	—	—	1,000	63,000
Austria	360	360	10,000	15,000
Bolivia	580	580	53,000	100,000
Brazil	100	100	20,000	20,000
Burma	330	330	15,000	34,000
Canada	—	—	260,000	490,000
China	24,000	24,000	920,000	1,300,000
France	—	—	20,000	20,000
Kazakstan	220	220	—	38,000
Korea, North	900	900	—	35,000
Korea, Republic of	—	—	58,000	77,000
Portugal	1,340	1,340	25,000	25,000
Russia	3,000	3,000	250,000	420,000
Tajikistan	50	50	—	23,000
Thailand	50	50	30,000	30,000
Turkmenistan	—	—	—	10,000
Uzbekistan	300	300	—	20,000
Other countries	680	680	280,000	360,000
World total (may be rounded)	32,000	32,000	2,100,000	3,300,000

World Resources: More than 90% of the world's estimated tungsten resources are outside the United States. Approximately 40% of these resources are in China, 15% are in Canada, and 13% are in Russia.

Substitutes: Cemented tungsten carbide remained a primary cutting-tool insert material because of its versatility in meeting technical requirements in many turning and milling operations. However, ceramics, ceramic-metallic composites, and other materials continued to be developed and utilized as substitutes to meet the changing needs of the world market. Increased quantities of carbide cutting-tool inserts were coated with nitrides, oxides, and carbides to extend the life of the inserts. Tungsten remained the preferred and essentially unsubstitutable material for filaments, electrodes, and contacts in lamp and lighting applications. However, an electrodeless, nontungsten lamp is available for commercial and industrial use.

[e]Estimated. W Withheld to avoid disclosing company proprietary data.

[1]Excludes 3 months of withheld data.

[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.

[5]See Appendix B.

[6]See Appendix C for definitions.

[7]See Appendix D for definitions.