

TANTALUM

(Data in thousand kilograms of tantalum content, unless otherwise noted)

Domestic Production and Use: There has been no significant domestic tantalum-mining industry since 1959, with the exception of small unreported quantities of tantalum-bearing concentrates produced in 1989-92. Domestic tantalum resources are of low grade, some mineralogically complex, and most are not commercially recoverable. Most metal, alloys, and compounds were produced by four companies; tantalum units were obtained from imported concentrates and metal and from foreign and domestic scrap. Tantalum was consumed mostly in the form of metal powder, ingot, fabricated forms, compounds, and alloys. The major end use for tantalum was in the production of electronic components, about 60% of use, mainly in tantalum capacitors. The value of tantalum consumed in 1996 was estimated at about \$140 million.

Salient Statistics—United States:	1992	1993	1994	1995	1996^e
Production, mine	(1)	—	—	—	—
Imports for consumption, concentrate, tin slags, and other ²	NA	NA	NA	NA	NA
Exports, concentrate, metal, alloys, waste, and scrap ^e	150	170	190	220	300
Consumption: Reported, raw material	NA	NA	NA	NA	NA
Apparent	375	410	430	515	490
Price, tantalite, dollars per pound ³	28.19	26.41	26.24	26.98	27.75
Stocks, industry, processor, yearend	NA	NA	NA	NA	NA
Employment	NA	NA	NA	NA	NA
Net import reliance ⁴ as a percent of apparent consumption	85	85	80	80	80

Recycling: Combined prompt industrial and obsolete scrap consumed represented about 20% of apparent consumption.

Import Sources (1992-95): Australia, 28%; Germany, 14% (majority of imports of unknown origin); Thailand, 11%; Brazil, 8%; and other, 39%.

Tariff: Item	Number	Most favored nation (MFN) 12/31/96	Non-MFN⁵ 12/31/96
Synthetic tantalum-columbium concentrates	2615.90.3000	Free	30% ad val.
Tantalum ores and concentrates	2615.90.6060	Free	Free.
Tantalum oxide	2825.90.9000	3.7% ad val.	25% ad val.
Potassium fluotantalate	2826.90.0000	3.1% ad val.	25% ad val.
Tantalum, unwrought:			
Waste and scrap	8103.10.3000	Free	Free.
Powders	8103.10.6030	3.2% ad val.	25% ad val.
Alloys and metal	8103.10.6090	3.2% ad val.	25% ad val.
Tantalum, wrought	8103.90.0000	5.1% ad val.	45% ad val.

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

Government Stockpile: The uncommitted inventories shown below include a small quantity in nonstockpile-grade tantalum capacitor-grade metal powder, 454,000 kilograms in nonstockpile-grade minerals, and 65,300 kilograms in tantalum metal ingots with status (inventory) not yet determined. The Department of Defense proposed to dispose of about 907 kilograms of tantalum carbide powder, about 45,400 kilograms of tantalum minerals, and about 9,070 kilograms of tantalum oxide in each of fiscal years 1997 and 1998.

Stockpile Status—9-30-96

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposals Jan.-Sept. 96
Tantalum:				
Carbide powder	13	—	—	—
Metal	184	—	—	—
Minerals	1,130	—	340	—
Oxide	74	—	—	—

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Events, Trends, and Issues: Overall consumption of tantalum was down in 1996. U.S. sales of tantalum capacitors for the first one-half year decreased by about 5% compared with that of the similar period in 1995. For the same period, imports for consumption of tantalum mineral concentrates rose by more than 10%, with Australia supplying about 50% of both quantity and value. In late November, the published spot price for tantalite ore was quoted in the range of \$27 to \$28.50 per pound of contained pentoxide. Industry sources indicated that the average selling prices for some tantalum products were as follows (per pound of contained tantalum): powder, \$100 to \$180; wire, \$170 to \$250; and sheet, \$100 to \$150. Tantalum oxide was selling at an average of \$40 to \$90 per pound of oxide, and the average selling price for tantalum carbide was \$45 to \$60 per pound.

It is estimated that in 1997 domestic mine production will be zero and U.S. apparent consumption will be about 500,000 kilograms.

World Mine Production, Reserves, and Reserve Base:

	Mine production ^{e 6}		Reserves ^{e 7}	Reserve base ^{e 7}
	1995	1996		
United States	—	—	—	Negligible
Australia	274	280	4,500	9,100
Brazil	50	50	900	1,400
Canada	26	30	1,800	2,300
Malaysia	—	—	900	1,800
Nigeria	2	2	3,200	4,500
Zaire	1	1	1,800	4,500
Zimbabwe	2	2	NA	NA
Other countries ⁸	1	1	1,400	1,800
World total (may be rounded)	356	366	15,000	26,000

World Resources: Most of the world's resources of tantalum occur outside the United States. On a worldwide basis, identified resources of tantalum are considered adequate to meet projected needs. These resources are largely in Australia, Brazil, Canada, Egypt, Malaysia, Nigeria, and Zaire. The United States has about 1.4 million kilograms of tantalum resources in identified deposits, most of which were considered uneconomic at 1996 prices.

Substitutes: The following materials can be substituted for tantalum, but usually with less effectiveness: columbium in superalloys and carbides; aluminum and ceramics in electronic capacitors; glass, titanium, zirconium, columbium, and platinum in corrosion-resistant equipment; and tungsten, rhenium, molybdenum, iridium, hafnium, and columbium in high-temperature applications.

^eEstimated. NA Not available.

¹A small unreported quantity was produced.

²Metal, alloys, and synthetic concentrates; exclusive of waste and scrap.

³Average value, contained tantalum pentoxides, 60% basis.

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

⁵See Appendix B.

⁶Excludes production of tantalum contained in tin slags.

⁷See Appendix C for definitions.

⁸Excludes any production from Bolivia, China, and countries in the former Soviet Union.