TANTALUM

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

Domestic Production and Use: There has been no significant domestic tantalum mining since 1959. Domestic tantalum resources are of low grade, some mineralogically complex, and most are not commercially recoverable. Most metal, alloys, and compounds were produced by three 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, more than 60% of use, mainly in tantalum capacitors. Major end uses for tantalum capacitors include automotive electronics, pagers, personal computers, and portable telephones. The value of tantalum consumed in 2004 was estimated at about $180 million.

Salient Statistics—United States:	2000	2001	2002	2003	2004[e]
Production, mine	—	—	—	—	—
Imports for consumption:					
Mineral concentrates[e]	650	690	710	490	450
Tantalum metal and tantalum-bearing alloys[e]	251	316	266	249	450
Exports, concentrate, metal, alloys, waste, scrap[e]	530	600	490	570	650
Government stockpile releases[e, 1]	242	(53)	16	335	66
Consumption, apparent	650	550	500	500	520
Price, tantalite, dollars per pound[2]	220.00	37.00	31.00	28.00	30.80
Net import reliance[3] as a percentage of apparent consumption	80	80	80	80	80

Recycling: Tantalum was recycled mostly from new scrap that was generated during the manufacture of tantalum-related electronic components and new and old scrap products of tantalum-containing cemented carbides and superalloys. Combined prompt industrial and obsolete scrap consumed represented about 20% of apparent consumption.

Import Sources (2000-03): Australia, 57%; Kazakhstan, 9%; Canada, 8%; China, 6%; and other, 20%.

Tariff: Item	Number	Normal Trade Relations 12-31-04
Synthetic tantalum-columbium concentrates	2615.90.3000	Free.
Tantalum ores and concentrates	2615.90.6060	Free.
Tantalum oxide	2825.90.9000	3.7% ad val.
Potassium fluotantalate	2826.90.0000	3.1% ad val.
Tantalum, unwrought:		
Powders	8103.20.0030	2.5% ad val.
Alloys and metal	8103.20.0090	2.5% ad val.
Tantalum, waste and scrap	8103.30.0000	Free.
Tantalum, other	8103.90.0000	4.4% ad val.

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

Government Stockpile: For fiscal year 2004, the Defense National Stockpile Center (DNSC), Defense Logistics Agency, sold about 18 tons of tantalum capacitor-grade metal powder, about 11 tons of tantalum metal ingots, about 317 tons of tantalum contained in tantalum-columbium minerals, and about 5 tons of tantalum contained in tantalum oxide from the National Defense Stockpile. There were no sales of tantalum carbide powder in fiscal year 2004. The DNSC announced maximum disposal limits in fiscal year 2005 of about 2 tons[4] of tantalum contained in tantalum carbide powder, about 18 tons[5] of tantalum contained in tantalum metal ingots, about 18 tons[4] of tantalum contained in tantalum metal powder, about 227 tons[4] of tantalum contained in tantalum minerals, and about 9 tons[4] of tantalum contained in tantalum oxide.

Prepared by **Larry D. Cunningham [(703) 648-4977, lcunning@usgs.gov, fax: (703) 648-7757]**

TANTALUM

Material	Stockpile Status—9-30-04[6] Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2004	Disposals FY 2004
Tantalum:					
Carbide powder	6	—	6	[5]2	—
Metal:					
Powder	16	—	16	[5]18	18
Ingots	9	—	9	[5]18	11
Minerals	508	20	508	227	317
Oxide	23	—	23	9	5

Events, Trends, and Issues: Apparent consumption of tantalum in 2004 rose slightly owing to increased demand from the electronics sector. Overall tantalum imports increased. However, imports for consumption of tantalum mineral concentrates were down, with Australia supplying about 75% of the quantity and about 90% of the value. Exports increased; Brazil, China, Germany, Israel, Japan, Thailand, and the United Kingdom were the major recipients of the tantalum materials. The price for tantalum is affected most by events in the supply of and demand for tantalum minerals. In September, quoted spot price ranges for tantalum minerals (per pound tantalum pentoxide content), in three published sources, were $20 to $30, $25 to $30, and $30 to $40. Public information on current prices for tantalum products was not available. According to industry sources, the pricing for tantalum products is mostly established by negotiation between buyer and seller; product specifications, volume, and processing requirements influence the negotiated price.

World Mine Production, Reserves, and Reserve Base:

	Mine production[7] 2003	Mine production[7] 2004[e]	Reserves[8]	Reserve base[8]
United States	—	—	—	Negligible
Australia	765	800	40,000	80,000
Brazil	200	200	NA	73,000
Burundi	14	15	NA	NA
Canada	55	55	3,000	NA
Congo (Kinshasa)	15	20	NA	NA
Ethiopia	35	35	NA	NA
Mozambique	75	75	NA	NA
Namibia	11	30	NA	NA
Nigeria	23	25	NA	NA
Rwanda	14	15	NA	NA
Uganda	2	2	NA	NA
Zimbabwe	1	1	NA	NA
Other countries[9]	—	—	NA	NA
World total (rounded)	1,210	1,270	43,000	150,000

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, and Canada. The United States has about 1,500 tons of tantalum resources in identified deposits, all of which were considered uneconomic at 2004 prices.

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

[e]Estimated. NA Not available. — Zero.
[1]Net quantity (uncommitted inventory). Parentheses indicate negative number (increase in inventory).
[2]Yearend average value, contained pentoxides.
[3]Defined as imports – exports + adjustments for Government and industry stock changes.
[4]Actual quantity limited to remaining sales authority; additional legislative authority is required.
[5]Actual quantity limited to remaining sales authority or inventory.
[6]See Appendix B for definitions.
[7]Excludes production of tantalum contained in tin slags.
[8]See Appendix C for definitions.
[9]Bolivia, China, Russia, and Zambia also produce (or are believed to produce) tantalum mineral concentrates, but available information is inadequate to make reliable estimates of output levels.