

TANTALUM

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

Domestic Production and Use: No significant U.S. tantalum mine production has been reported since 1959. Domestic tantalum resources are of low grade, some mineralogically complex, and most are not commercially recoverable. Companies in the United States produced tantalum alloys, compounds, and metal from imported tantalum-containing materials, and metal and alloys were recovered from foreign and domestic scrap. Tantalum was consumed mostly in the form of alloys, compounds, fabricated forms, ingot, and metal powder. Tantalum capacitors were estimated to account for more than 60% of tantalum use, internationally. Major end uses for tantalum capacitors include automotive electronics, personal computers, and cellular telephones. The value of tantalum consumed in 2014 was expected to exceed \$250 million as measured by the value of imports.

Salient Statistics—United States:	2010	2011	2012	2013	2014^e
Production:					
Mine	—	—	—	—	—
Secondary	NA	NA	NA	NA	NA
Imports for consumption ^{e, 1}	1,600	1,850	1,010	1,100	921
Exports ^{e, 1}	438	648	577	844	782
Government stockpile releases ^{e, 2}	—	—	—	—	—
Consumption, apparent	1,160	1,210	437	260	139
Price, tantalite, dollars per pound of Ta ₂ O ₅ content ³	54	125	108	118	110
Net import reliance ⁴ as a percentage of apparent consumption	100	100	100	100	100

Recycling: Tantalum was recycled mostly from new scrap that was generated during the manufacture of tantalum-containing electronic components and from tantalum-containing cemented carbide and superalloy scrap.

Import Sources (2010–13): Tantalum minerals: Brazil, 31%; Canada, 19%; Australia, 12%; and other, 38%. Tantalum metal: China, 28%; Kazakhstan, 27%; Thailand, 14%; Germany, 13%; and other, 18%. Tantalum waste and scrap: Estonia, 20%; Russia, 13%; China, 12%; and other 55%. Tantalum contained in niobium (columbium) and tantalum ore and concentrate; tantalum metal; and tantalum waste and scrap: China, 21%; Germany, 12%; Kazakhstan, 10%; Russia, 7%; and other, 50%.

Tariff:	Item	Number	Normal Trade Relations 12–31–14
	Synthetic tantalum-niobium concentrates	2615.90.3000	Free.
	Tantalum ores and concentrates	2615.90.6060	Free.
	Tantalum oxide ⁵	2825.90.9000	3.7% ad val.
	Potassium fluorotantalate ⁵	2826.90.9000	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:

Stockpile Status—9–30–14⁶

Material	Inventory	Disposal Plan FY 2014	Disposals FY 2014
Tantalum carbide powder	1.71	—	—
Tantalum metal scrap	0.09	—	—

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Events, Trends, and Issues: U.S. tantalum apparent consumption in 2014 was estimated to have decreased to about 53% of that of 2013. Tantalum waste and scrap was the leading imported tantalum material, accounting for about 48% of tantalum imports. In 2014, the average price per month of tantalum ore fell from about \$116.5 in January to about \$92.5 in August. Tantalum is one of the minerals covered by the Dodd-Frank Act. As a result, companies listed by the Securities and Exchange Commission (SEC) were obligated to file a special document form with the SEC describing their source(s) of tantalum from conflict areas or to perform due diligence to make such a determination. Congo (Kinshasa) accounts for about 21% of tantalum world production; the Congo geographic area (Burundi, Congo, and Rwanda), about 53%. Three tantalum mining companies have stopped production since the 2008/2009 world economic slowdown; Morropino (Mozambique), Tanco (Canada), and Wodgina (Australia). In addition, Kenticha (Ethiopia) suspended production while renovating and expanding its operation. Before the economic slowdown, the price of tantalite was \$30 to \$40 per pound of Ta₂O₅ content; since then, the price has risen to \$110 to \$120 per pound. Since 2008/2009, world tantalum mine production has actually declined while prices increased; suggesting that increased production to meet higher market demand is coming from undocumented sources or that stocks are being drawn down. Tantalum use has been estimated at more than 50% for electronics applications of which capacitors are the leading end use. Tantalum oxide is used in glass lenses to get lighter weight lenses that produce a brighter image. Tantalum carbide is used in cutting tools.

World Mine Production and Reserves:

	Mine production ⁷		Reserves ⁸
	2013	2014 ^e	
United States	—	—	—
Australia	—	—	⁹ 67,000
Brazil	98	98	36,000
Burundi	20	14	NA
Canada	5	—	NA
China	60	60	NA
Congo (Kinshasa)	*200	*200	NA
Ethiopia	8	40	NA
Mozambique	115	85	NA
Nigeria	60	60	NA
Rwanda	*600	*600	NA
World total (rounded)	*1,170	*1,200	>100,000

World Resources: Identified resources of tantalum, most of which are in Australia, Brazil, and Canada, are considered adequate to meet projected needs. The United States has about 1,500 tons of tantalum resources in identified deposits, all of which are considered uneconomic at 2014 prices.

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

^eEstimated. NA Not available. — Zero.

¹Imports and exports include the estimated tantalum content of niobium and tantalum ores and concentrates, unwrought tantalum alloys and powder, tantalum waste and scrap, and other tantalum articles.

²Government stockpile inventory reported by DLA Strategic Materials is the basis for estimating Government stockpile releases.

³Price is annual average price reported in Ryan's Notes.

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

⁵This category includes other than tantalum-containing material.

⁶See [Appendix B](#) for definitions.

⁷Excludes production of tantalum contained in tin slags. Number represents tantalum in ore only; does not include alloys, powder, waste, scrap, or other tantalum articles.

⁸See [Appendix C](#) for resource/reserve definitions and information concerning data sources.

⁹For Australia, Joint Ore Reserves Committee (JORC)-compliant reserves were 29,000 tons.

*Revisions based on new data posted on May 14, 2015.