

## 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 concentrates, 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. Major end uses for tantalum capacitors include automotive electronics, pagers, personal computers, and portable telephones. The value of tantalum consumed in 2011 was estimated at about \$219 million and was expected to exceed \$290 million in 2012 as measured by the value of imports.

<b>Salient Statistics—United States:</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012<sup>e</sup></b>
Production:					
Mine	—	—	—	—	—
Secondary	NA	NA	NA	NA	NA
Imports for consumption <sup>e, 1</sup>	1,290	798	1,600	1,850	1,000
Exports <sup>e, 1</sup>	662	326	438	648	500
Government stockpile releases <sup>e, 2</sup>	—	—	—	—	—
Consumption, apparent	629	473	1,160	1,210	500
Price, tantalite, dollars per pound of Ta <sub>2</sub> O <sub>5</sub> content <sup>3</sup>	44	40	54	125	110
Net import reliance <sup>4</sup> 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 (2008–11):** Tantalum contained in niobium (columbium) and tantalum ore and concentrate; tantalum metal; and tantalum waste and scrap—China, 17%; Estonia, 13%; Germany, 11%; Kazakhstan, 9%; and other, 50%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Normal Trade Relations 12–31–12</b>
	Synthetic tantalum-niobium concentrates	2615.90.3000	Free.
	Tantalum ores and concentrates	2615.90.6060	Free.
	Tantalum oxide	2825.90.9000 <sup>5</sup>	3.7% ad val.
	Potassium fluotantalate	2826.90.9000 <sup>5</sup>	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:** In fiscal year (FY) 2012, which ended on September 30, 2012, the Defense Logistics Agency, DLA Strategic Materials sold no tantalum materials. The DLA Strategic Materials has not yet announced maximum disposal limits for tantalum carbide powder in FY 2013. The DLA Strategic Materials exhausted stocks of tantalum minerals in FY 2007, metal powder in FY 2006, metal oxide in FY 2006, and metal ingots in FY 2005.

<b>Material</b>	<b>Stockpile Status—9–30–12<sup>6</sup></b>			
	<b>Uncommitted inventory</b>	<b>Authorized for disposal</b>	<b>Disposal plan FY 2012</b>	<b>Disposals FY 2012</b>
Tantalum carbide powder	1.82	7—	7—	—

Inventory in FY2012 is greater than that of FY2011 owing to revised inventory in September 2012, not material purchase.

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**Events, Trends, and Issues:** U.S. tantalum apparent consumption in 2012 was estimated to have been less than one-half that of 2011. Tantalum waste and scrap was the leading imported tantalum material, accounting for about 74% of tantalum imports. By weight, averaged from 2008 through 2011, the leading suppliers of tantalum imports for consumption were: mineral concentrate, Australia, 54%; Mozambique, 22%; and Canada, 19%; metal, China, 31%; Kazakhstan, 27%; and Germany, 14%; and waste and scrap, Estonia, 22%; Russia, 14%; and Mexico, 12%.

**World Mine Production and Reserves:** Reserves for Brazil were revised based on a Departamento Nacional de Produção Mineral publication. Reserves for Mozambique were revised based on a company report.

	Mine production <sup>8</sup>		Reserves <sup>9</sup>
	2011	2012 <sup>e</sup>	
United States	—	—	—
Australia	—	—	<sup>10</sup> 53,000
Brazil	180	180	88,000
Burundi	13	13	NA
Canada	—	—	4,000
Congo (Kinshasa)	95	95	NA
Ethiopia	76	76	4,000
Mozambique	260	260	NA
Nigeria	50	50	NA
Rwanda	93	90	NA
World total (rounded)	767	765	>150,000

**World Resources:** Identified resources of tantalum, most of which are in Australia and Brazil, 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 2012 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 equipment; and hafnium, iridium, molybdenum, niobium, rhenium, and tungsten in high-temperature applications.

<sup>e</sup>Estimated. NA Not available. — Zero.

<sup>1</sup>Imports 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.

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

<sup>3</sup>Price is annual average price reported in Ryan's Notes.

<sup>4</sup>Defined as imports – exports + adjustments for Government and industry stock changes.

<sup>5</sup>This category includes other than tantalum-containing material.

<sup>6</sup>[See Appendix B for definitions.](#)

<sup>7</sup>Actual quantity limited to remaining sales authority or inventory.

<sup>8</sup>Excludes production of tantalum contained in tin slags.

<sup>9</sup>[See Appendix C for resource/reserve definitions and information concerning data sources.](#)

<sup>10</sup>For Australia, Joint Ore Reserves Committee (JORC)-compliant reserves were 19,000 tons.