TANTALUM

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

Domestic Production and Use: Significant U.S. tantalum mine production has not been reported since 1959. Domestic tantalum resources are of low grade, some are mineralogically complex, and most are not commercially recoverable. Companies in the United States produced tantalum alloys, capacitors, carbides, compounds, and tantalum metal from imported tantalum ores and concentrates and tantalum-containing materials. Tantalum metal and alloys were recovered from foreign and domestic scrap. Domestic tantalum consumption was not reported by consumers. Major end uses for tantalum included alloys for gas turbines used in the aerospace and oil and gas industries; tantalum capacitors for automotive electronics, mobile phones, and personal computers; tantalum carbides for cutting and boring tools; and tantalum oxide (Ta_2O_5) was used in glass lenses to make lighter weight camera lenses that produce a brighter image. The value of tantalum consumed in 2019 was estimated to exceed $270 million as measured by the value of imports.

Salient Statistics—United States:	2015	2016	2017	2018	2019e
Production:					
Mine	—	—	—	—	—
Secondary	NA	NA	NA	NA	NA
Imports for consumption[1]	1,240	1,060	1,460	1,660	1,300
Exports[1]	657	604	549	681	440
Shipments from Government stockpile	—	—	—	—	—
Consumption, apparent[2]	587	460	907	978	870
Price, tantalite, dollars per kilogram of Ta_2O_5 content[3]	193	193	193	214	162
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. The amount of tantalum recycled was not available, but it may be as much as 30% of apparent consumption.

Import Sources (2015–18): Tantalum ores and concentrates: Rwanda, 39%; Brazil, 20%; Australia, 17%; Congo (Kinshasa), 10%; and other, 14%. Tantalum metal and powder: China, 39%; Germany, 19%; Kazakhstan, 14%; Thailand, 12%; and other, 16%. Tantalum waste and scrap: Mexico, 14%; Austria, 11%; Japan, 10%; Germany, 9%; and other, 56%.

Tariff: Item	Number	Normal Trade Relations 12–31–19
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:[6]

		FY 2019		FY 2020	
Material	Inventory As of 9–30–19	Potential Acquisitions	Potential Disposals	Potential Acquisitions	Potential Disposals
Tantalum carbide powder	1.71	—	1.71	—	1.71
Tantalum metal[7] (gross weight)	0.084	15.4	0.09	15.4	0.09
Tantalum alloy (gross weight)	0.0015	—	—	—	—

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TANTALUM

Events, Trends, and Issues: U.S. tantalum apparent consumption (measured in contained tantalum) was estimated to have decreased by 11% from that of 2018. U.S. imports for consumption decreased by 21% from those of 2018. U.S. domestic exports decreased by 35% from those of 2018. The overall decrease in tantalum trade in 2019 was attributed to decreases in the trade of tantalum ores and concentrates (43% decrease in exports; 26% decrease in imports) and tantalum scrap (60% decrease in exports; 28% decrease in imports). Congo (Kinshasa) and Rwanda accounted for 60% of estimated global tantalum production in 2019.

In 2019, the average monthly price of tantalum ore decreased to about $158 per kilogram of Ta_2O_5 content in October from about $173 per kilogram of Ta_2O_5 content in January. This average monthly price in 2019 represented a decrease of about 26% from the average monthly price in 2018. The decrease in tantalum ore prices in 2019 was largely driven by an increasing supply of low-cost byproduct tantalum concentrates from two lithium operations in Western Australia. However, in August one of the two producing companies began scaling back operations and planned to place its Bald Hill Mine on care-and-maintenance status owing to slower than expected demand growth for lithium and a sharp decline in lithium prices between 2018 and 2019. The second company, which operated the Pilgangoora project, postponed a planned yearend 2019 expansion that would have more than doubled its lithium and tantalum production capacities.

In July, a specialty metals processor in Estonia suspended its niobium and tantalum recovery operations. The company reached its limit for onsite storage of the radioactive tailings that were produced during recovery of niobium and tantalum. The Ministry of Environment of Estonia required the company to have an agreement for offsite storage or disposal of the radioactive tailings before it could resume recovery operations.

World Mine Production and Reserves: Reserves for Australia were revised based on Government and industry information.

	Mine production		Reserves[8]
	2018	2019[e]	
United States	—	—	—
Australia	23	20	[9]55,000
Brazil	250	250	34,000
Burundi	23	32	NA
China	90	100	NA
Congo (Kinshasa)	740	740	NA
Ethiopia	70	40	NA
Nigeria	200	210	NA
Russia	38	38	NA
Rwanda	421	370	NA
Other countries	40	39	NA
World total (rounded)	1,890	1,800	>90,000

World Resources: Identified world resources of tantalum, most of which are in Australia, Brazil, and Canada, are considered adequate to supply projected needs. The United States has about 55,000 tons of tantalum resources in identified deposits, most of which were considered uneconomic at 2019 prices for tantalum.

Substitutes: The following materials can be substituted for tantalum, but a performance loss or higher costs may ensue: niobium and tungsten in carbides; aluminum, ceramics, and niobium in electronic capacitors; glass, molybdenum, nickel, niobium, platinum, stainless steel, titanium, and zirconium in corrosion-resistant applications; and hafnium, iridium, molybdenum, niobium, rhenium, and tungsten in high-temperature applications.

[e]Estimated. NA Not available. — Zero.

[1]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. Synthetic concentrates and niobium ores and concentrates were assumed to contain 32% Ta_2O_5. Tantalum ores and concentrates were assumed to contain 37% Ta_2O_5. Ta_2O_5 is 81.897% Ta.

[2]Defined as production + imports – exports + adjustments for Government stock changes.

[3]Price is annual average price reported by CRU Group. Estimate for 2019 includes data through October 2019.

[4]Defined as imports – exports + adjustments for Government stock changes.

[5]This category includes tantalum-containing material and other material.

[6]See Appendix B for definitions.

[7]Potential acquisitions are for unspecified tantalum materials; potential disposals are for tantalum scrap in the Government stockpile.

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

[9]For Australia, Joint Ore Reserves Committee-compliant reserves were 14,000 tons.