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 2020 was estimated to exceed $210 million as measured by the value of imports.

Salient Statistics—United States:	2016	2017	2018	2019	2020[e]
Production:					
Mine	—	—	—	—	—
Secondary	NA	NA	NA	NA	NA
Imports for consumption[1]	1,060	1,460	1,660	1,380	1,300
Exports[1]	604	549	681	423	400
Shipments from Government stockpile	—	—	—	—	2
Consumption, apparent[2]	460	907	975	957	900
Price, tantalite, dollars per kilogram of Ta_2O_5 content[3]	193	193	214	161	158
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 (2016–19): Tantalum ores and concentrates: Rwanda, 36%; Australia, 25%; Brazil, 14%; Congo (Kinshasa), 7%; and other, 18%. Tantalum metal and powder: China, 38%; Germany, 21%; Thailand, 13%; Kazakhstan, 12%; and other, 16%. Tantalum waste and scrap: Indonesia, 15%; China, 13%; Japan, 13%; Mexico, 10%; and other, 49%. Total: China, 26%; Germany, 11%; Australia, 10%; Indonesia, 10%, and other, 43%.

Tariff: Item	Number	Normal Trade Relations 12–31–20
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 2020		FY 2021	
Material	Inventory as of 9–30–20	Potential acquisitions	Potential disposals	Potential acquisitions	Potential disposals
Tantalum carbide powder	—	—	1.71	—	—
Tantalum niobium concentrate (gross weight)	59	—	—	—	—
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 6% from that of 2019. Most of the tantalum imported was in the form of scrap followed by a slightly lesser quantity of metal and powder; imports of ores and concentrates decreased by almost 20% from that in 2019. Globally, consumption of tantalum decreased because of disruptions in transportation and electronics manufacturing supply chains caused by the global COVID-19 pandemic; a leading end use for tantalum was in capacitors. Significant production decreases by major aircraft manufacturers reduced tantalum consumption for superalloys.

World production was lower in part because of temporary mine closures in Brazil and Rwanda caused by the COVID-19 pandemic. Continued low prices for tantalum was also a factor. In Australia, lithium mines that had produced tantalum as a byproduct in 2019 remained on care-and-maintenance status in 2020 because of continued low prices for lithium. Production in Congo (Kinshasa) was estimated to have increased in 2020 based on reported ore production through August 2020; China was the main export destination. Brazil, Congo (Kinshasa), and Rwanda accounted for 77% of estimated global tantalum mine production in 2020.

The U.S. Department of Defense issued an interim rule effective October 1, 2020, amending the Defense Federal Acquisition Regulation Supplement to implement a section of the National Defense Authorization Act for Fiscal Year 2020 that prohibits the acquisition of tantalum metal and alloys from China, Iran, North Korea, and Russia.

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

	Mine production		Reserves[8]
	2019	2020[e]	
United States	—	—	—
Australia	67	30	[9]99,000
Brazil	430	370	40,000
Burundi	38	30	NA
China	76	70	NA
Congo (Kinshasa)	580	670	NA
Ethiopia	70	60	NA
Nigeria	180	160	NA
Russia	26	26	NA
Rwanda	336	270	NA
Other countries	45	35	NA
World total (rounded)	1,850	1,700	>140,000

World Resources:[8] 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 uneconomical at 2020 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. The estimate for 2020 includes data available through October 2020.

[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 44,400 tons.