TANTALUM

(Data in metric tons of contained tantalum 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 2021 was estimated to exceed $220 million as measured by the value of imports.

Salient Statistics—United States:	2017	2018	2019	2020	2021[e]
Production:					
Mine	—	—	—	—	—
Secondary	NA	NA	NA	NA	NA
Imports for consumption[1]	1,460	1,660	1,380	1,230	1,300
Exports[1]	549	681	423	417	580
Shipments from Government stockpile[2]	—	—	—	−16	−10
Consumption, apparent[3]	907	975	956	797	710
Price, tantalite, dollars per kilogram of Ta_2O_5 content[4]	193	214	161	158	158
Net import reliance[5] 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 (2017–20): Tantalum ores and concentrates: Australia, 36%; Rwanda, 34%; Congo (Kinshasa), 7%; Mozambique, 6%; and other, 17%. Tantalum metal and powder: China,[6] 39%; Germany, 22%; Kazakhstan, 12%; Thailand, 12%; and other, 15%. Tantalum waste and scrap: Indonesia, 20%; China,[6] 17%; Japan, 16%; and other, 47%. Total: China,[6] 23%; Germany, 11%; Australia, 8%; Indonesia, 8%; and other, 50%.

Tariff: Item	Number	Normal Trade Relations 12–31–21
Synthetic tantalum-niobium concentrates	2615.90.3000	Free.
Niobium ores and concentrates	2615.90.6030	Free.
Tantalum ores and concentrates	2615.90.6060	Free.
Tantalum oxide[7]	2825.90.9000	3.7% ad valorem.
Potassium fluorotantalate[7]	2826.90.9000	3.1% ad valorem.
Tantalum, unwrought:		
Powders	8103.20.0030	2.5% ad valorem.
Alloys and metal	8103.20.0090	2.5% ad valorem.
Tantalum, waste and scrap	8103.30.0000	Free.
Tantalum, other	8103.90.0000	4.4% ad valorem.

Depletion Allowance: 22% (domestic), 14% (foreign).

Government Stockpile:[8]

		FY 2021		FY 2022	
Material	Inventory as of 9–30–21	Potential acquisitions	Potential disposals	Potential acquisitions	Potential disposals
Tantalum carbide powder	—	—	1.71	—	1.71
Tantalum niobium concentrate (gross weight)	92	—	—	—	—
Tantalum metal[9] (gross weight)	0.085	15.4	0.09	—	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 in 2020. In 2021, estimated U.S. imports for consumption increased by 6%. Most of the tantalum imported was in the form of metal and powder (45%), followed by ores and concentrates (30%), and waste and scrap (24%). Waste and scrap imports saw the most significant variation by declining 37% from that in 2020. Estimated U.S. exports increased by 39% in 2021. In 2021, the average monthly price of tantalum ore remained constant at about $158 per kilogram of Ta_2O_5 content between both years.

Global tantalum production and consumption were thought to have increased in 2021 as steel production in most countries began to recover from the global COVID-19 pandemic. Production in Rwanda was estimated to have increased based on reported ore production through August 2021. China remained the leading export destination through the same period, accounting for approximately 30% of tantalum ores and concentrates, waste and scrap, and metals consumption. Brazil, Congo (Kinshasa), Nigeria, and Rwanda accounted for about 80% of estimated global tantalum production in 2021.

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

	Mine production		Reserves[10]
	2020	2021[e]	
United States	—	—	—
Australia	34	62	[11]94,000
Bolivia	7	7	NA
Brazil	470	470	40,000
Burundi	24	32	NA
China	74	76	NA
Congo (Kinshasa)	780	700	NA
Ethiopia	69	52	NA
Mozambique	43	43	NA
Nigeria	260	260	NA
Russia	49	39	NA
Rwanda	254	270	NA
Uganda	38	40	NA
World total (rounded)	2,100	2,100	NA

World Resources:[10] 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 2021 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 synthetic tantalum-niobium concentrates, niobium and tantalum ores and concentrates, tantalum waste and scrap, unwrought tantalum alloys and powder, 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% tantalum.

[2]Change in total inventory from prior yearend inventory. If negative, increase in inventory.

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

[4]Price is annual average price reported by CRU Group. The estimate for 2021 includes data available through October 2021.

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

[6]Includes Hong Kong.

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

[8]See Appendix B for definitions.

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

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

[11]For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 39,000 tons.