THORIUM

(Data in kilograms unless otherwise specified)

Domestic Production and Use: The world's primary source of thorium is the rare-earth and thorium phosphate mineral monazite. In 2025, monazite may have been produced as a separated concentrate or included as an accessory mineral in heavy-mineral concentrates, but thorium was not separated or recovered by any domestic facility. Essentially, all thorium compounds and alloys consumed by the domestic industry were derived from imports. The number of companies that processed or fabricated various forms of thorium for commercial use was not available. Thorium's use in most products was generally limited because of concerns over its naturally occurring radioactivity. Imports of thorium compounds are sporadic owing to changes in consumption and fluctuations in consumer inventory levels. The estimated value of thorium compounds imported for consumption by the domestic industry in 2025 was $118,000 (based on data through July 2025), compared with $120,000 in 2024.

Salient Statistics—United States:	2021	2022	2023	2024	2025[e]
Production, mine (monazite)[1]	W	W	W	W	W
Imports for consumption:					
Ore and concentrates (monazite)	16,000	—	—	—	—
Compounds (oxide, nitrate, and so forth)	5,790	1,930	13,300	4,310	5,000
Exports:					
Ore and concentrates (monazite)	—	22,000	—	—	—
Compounds (oxide, nitrate, and so forth)[2]	45,600	25,900	65,000	51,400	1,500
Consumption, apparent:[3]					
Ore and concentrates (monazite)	W	W	W	W	W
Compounds (oxide, nitrate, and so forth)	NA	NA	NA	NA	3,500
Price, average unit value of imports, compounds, dollars per kilogram:[4]					
India	NA	NA	74	NA	NA
France	29	26	29	27	26
Net import reliance[5] as a percentage of apparent consumption	NA	NA	NA	NA	NA

Recycling: None.

Import Sources (2021–24): Ores and concentrates (monazite): China, 100%. Thorium compounds: France, 51%; India, 47%; and other, 2%.

Tariff: Item	Number	Normal Trade Relations 12–31–25
Thorium ore and concentrates (monazite)	2612.20.0000	Free.
Thorium compounds	2844.30.1000	5.5% ad valorem.

Depletion Allowance: Monazite, 22% on thorium content and 14% on rare-earth and yttrium content (domestic); 14% (foreign).

Government Stockpile: None.

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THORIUM

Events, Trends, and Issues: Domestic demand for thorium alloys, compounds, and metals was limited. In addition to research purposes, various commercial uses of thorium included catalysts, high-temperature ceramics, magnetrons in microwave ovens, metal-halide lamps, nuclear medicine, optical coatings, tungsten filaments, and welding electrodes.

Exports of unspecified thorium compounds were 879 kilograms through July 2025 with a unit value of $291 per kilogram. Owing to variations in the type and purity of thorium compounds, the unit value of exports can vary widely by month and by exporting customs district.

Globally, monazite was produced primarily for its rare-earth-element content, and only a small fraction of the byproduct thorium was recovered and consumed. Thorium consumption worldwide is relatively small compared with that of most other mineral commodities. In international trade, China was the leading importer of monazite; Nigeria, Madagascar, Thailand, and Indonesia were China's leading import sources, in descending order of quantity.

Several companies and countries were active in the pursuit of commercializing a new generation of nuclear reactors that would use thorium as a fuel material. Thorium-based nuclear research and development programs have been or were underway in Australia, Belgium, Brazil, Canada, China, Czechia, Denmark, Finland, France, Germany, India, Israel, Italy, Japan, the Republic of Korea, the Netherlands, Norway, Russia, the United Kingdom, and the United States.

World Mine Production and Reserves:[6] Production and reserves are associated with the recovery of monazite in heavy-mineral-sand deposits. Without demand for the rare earths, monazite likely would not be recovered for its thorium content under current market conditions.

World Resources:[6] The world's leading thorium resources are found in placer, carbonatite, and vein-type deposits. Thorium is found in several minerals, including monazite, thorianite, and thorite. According to the World Nuclear Association,[7] worldwide identified thorium resources were an estimated 6.4 million tons of thorium. Thorium resources are found throughout the world, most notably in Australia, Brazil, India, and the United States. India has the largest resources (850,000 tons), followed by Brazil (630,000 tons), and Australia and the United States (600,000 tons each).

Substitutes: Nonradioactive substitutes have been developed for many applications of thorium. Yttrium compounds have replaced thorium compounds in incandescent lamp mantles. A magnesium alloy containing lanthanides, yttrium, and zirconium can substitute for magnesium-thorium alloys in aerospace applications. Cerium, lanthanum, yttrium, and zirconium oxides can substitute for thorium in welding electrodes. Several replacement materials (such as yttrium fluoride and proprietary materials) are in use as optical coatings instead of thorium fluoride.

[e]Estimated. NA Not available. W Withheld to avoid disclosing company proprietary data. — Zero.
[1]Monazite may have been produced as a separate concentrate or included as an accessory mineral in heavy-mineral concentrates.
[2]Includes material that may have been misclassified.
[3]Defined as production + imports – exports. Production is only for ore and concentrates. Monazite is produced for the production of rare-earth compounds and not for thorium recovery. The apparent consumption calculation for thorium compounds results in a negative value for thorium compounds.
[4]Calculated from U.S. Census Bureau import data.
[5]Defined as imports – exports; however, a meaningful net import reliance could not be calculated owing to uncertainties in the classification of material being imported and exported.
[6]See Appendix C for resource and reserve definitions and information concerning data sources.
[7]Source: World Nuclear Association, 2017, Thorium: London, United Kingdom, World Nuclear Association, February.