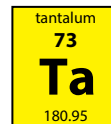


Tantalum

MINERAL COMMODITY SPOTLIGHT

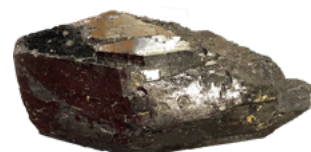
Abraham J. Padilla, USGS mineral commodity specialist



PRODUCTION

Geologic Occurrence

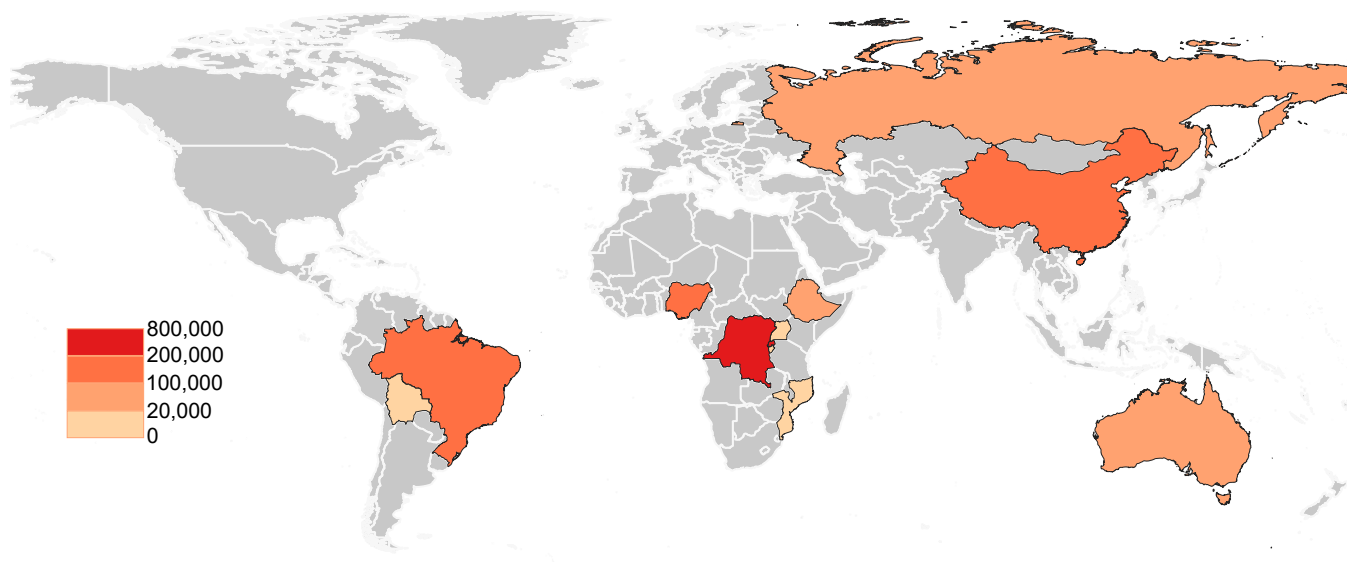
Tantalum, a rare, very hard transition metal, does not occur naturally in metallic form. The estimated average abundance of tantalum in Earth's crust is about 2 parts per million (or 0.0002%). Although many tantalum-bearing minerals have been identified, the most economically significant ones are the oxide minerals columbite, microlite, tantalite, and wodginite. Most of the world's largest tantalum resources are associated with rare-metal pegmatites, such as those found in the Pilbara Craton (Australia) and pegmatites of the Kibaran orogen (Africa). Tantalum also occurs in some rare-metal granites, and in placer deposits derived from weathering of those granites and pegmatites.



Wodginite, a tantalum-bearing mineral, in the Smithsonian National Museum of Natural History minerals collection. (Photo: A. Padilla, USGS)

World Production of Tantalum Concentrates, 2017

Kilograms, Tantalum Content

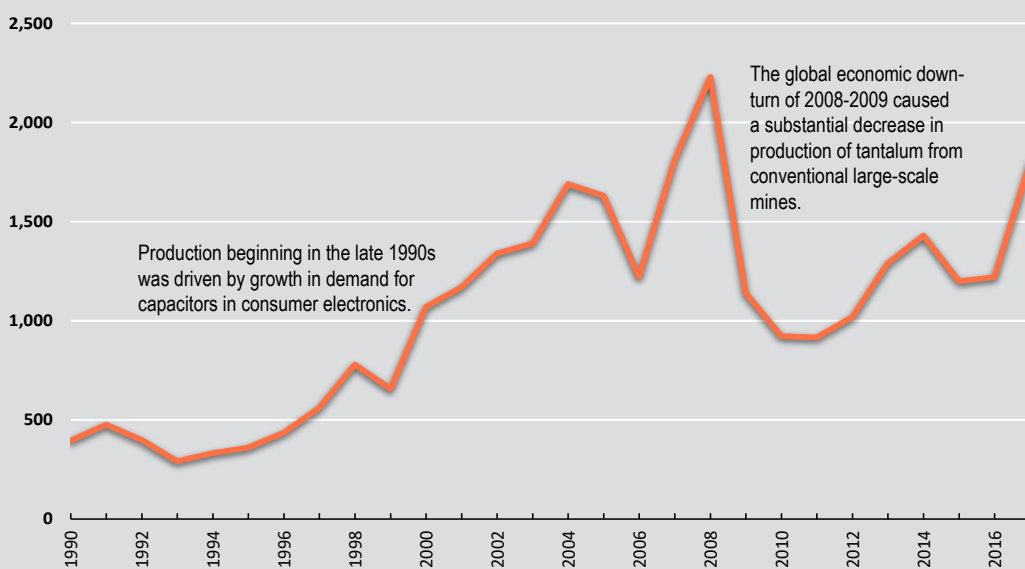


Tantalite, shown here as stibiotantalite, in the Smithsonian National Museum of Natural History minerals collection. (Photo: A. Padilla, USGS)



World Production of Tantalum Concentrates

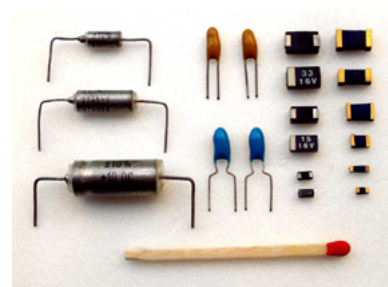
Metric Tons, Tantalum Content



CONSUMPTION

Commercial Usage

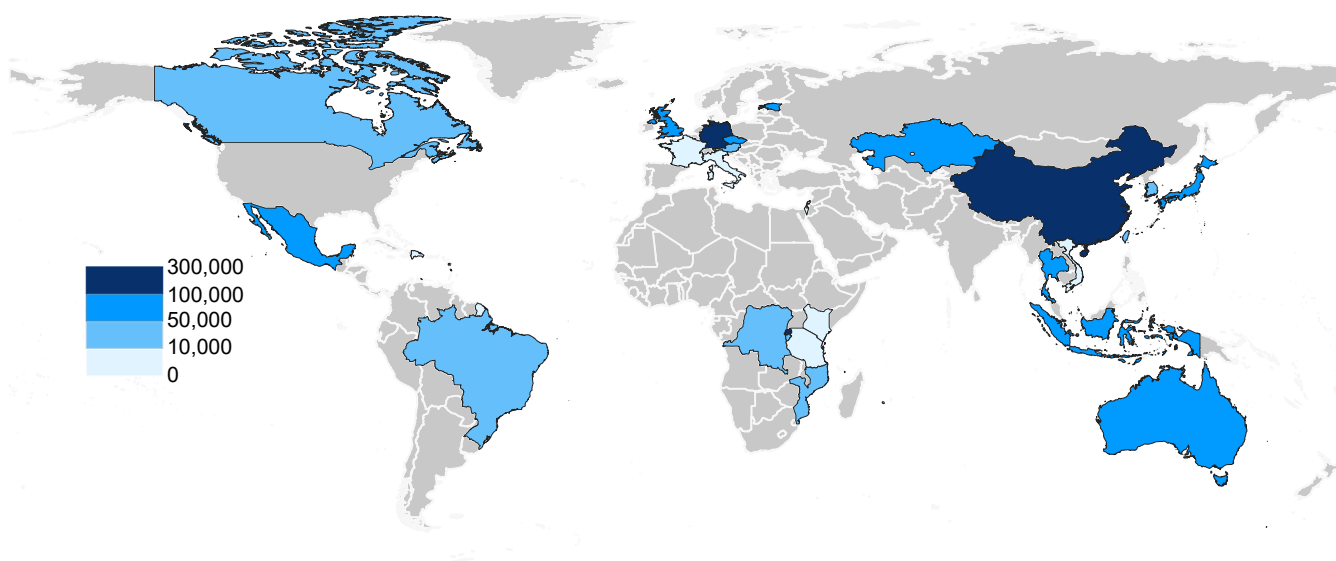
Tantalum is largely used in applications that require increased chemical, corrosion, and/or heat resistance. Roughly half of the tantalum is consumed by the electronics industry, primarily to manufacture capacitors (for electronic products such as cellular phones and computers) and sputtering targets. The remainder is consumed by the chemical and metallurgical industries to manufacture tantalum-containing carbide cutting tools, chemicals, and superalloys.



Various types of tantalum capacitors used in modern-day consumer electronics (Source of Photo: <https://en.wikipedia.org/wiki/File:Tantal-P1100196c.jpg>)

U.S. Imports of Tantalum, 2017

Kilograms, Tantalum Content



Fun Facts

Of the elements with stable isotopes, tantalum is estimated as the least abundant in the entire universe.

Only 3 other metals have higher melting points than tantalum metal (3,017°C): osmium (3,033°C), rhenium (3,186°C), and tungsten (3,422°C).

Tantalum is inert and biocompatible (does not react with body fluids) and therefore used for making surgical equipment and medical implants.

U.S. Apparent Consumption of Tantalum

Metric tons, Tantalum Content

