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Discovery Core - Sand

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Tantalizing Tantalum

Imagine a world without cell phones, without video games, with no DVD players nor computers. Hard to imagine? It certainly is now, but without the metal known as tantalum, that is the world we would have. Tantalum isn't only used in electronics, however. It has many medical applications where it is used because it doesn't react with bodily fluids; this includes surgical equipment as well as implants such as replacement joints or cranial plates (Gagnon). Yet there would be more to a world without tantalum than just these factors... *[more background information would be added here; you get the idea]*

Tantalum is a chemical element with symbol Ta and atomic number 73. Previously known as *tantalium*, its name comes from *Tantalus*, an antihero from Greek mythology (Aycan). Tantalum is a rare, hard, blue-gray, lustrous transition metal that is highly corrosion-resistant. Its main use today is in tantalum capacitors in electronic equipment such as mobile phones, DVD players, video game systems and computers. Tantalum, always together with the chemically similar niobium, occurs in the minerals tantalite, columbite and coltan (a mix of columbite and tantalite).

Tantalum was discovered in Sweden in 1802 by Anders Ekeberg (Ekeberg). It was thought for many years that columbium and tantalum were the same element. This conclusion was disputed in 1846 by the German chemist Heinrich Rose, who argued that there were two additional elements in the tantalite sample, and he named them after the children of Tantalus: niobium (from Niobe, the goddess of tears), and pelopium (from Pelops) (Rose). The supposed element "pelopium" was later identified as a mixture of tantalum and niobium, and it was found that the niobium was identical to the columbium already discovered in 1801 by Hatchett.

Early investigators had only been able to produce impure tantalum, and the first relatively pure ductile metal was produced by Werner von Bolton in 1903. Wires made with metallic tantalum were used for light bulb filaments until tungsten replaced it in widespread use (Bowers).

The name tantalum was derived from the name of the mythological Tantalus, the father of Niobe in Greek mythology. In the story, he had been punished after death by being condemned to stand knee-deep in water with perfect fruit growing above his head, both of which eternally *tantalized* him. (If he bent to drink the water, it drained below the level he could reach, and if he reached for the fruit, the branches moved out of his grasp.) Ekeberg wrote "This metal I call *tantalum*

... partly in allusion to its incapacity, when immersed in acid, to absorb any and be saturated (Ekeberg).

Tantalum is considered a conflict resource. Coltan, the industrial name for a columbite–tantalite mineral from which columbium (i.e. niobium) and tantalum are extracted, can also be found in Central Africa, which is why tantalum is being linked to warfare in the Democratic Republic of the Congo (formerly Zaire). According to an October 23, 2003 United Nations report...*[more info would be included here...but you get the idea]*

Citations

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