Beryllium Encyclopedia Article

Beryllium

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Beryllium

Beryllium is a steel-gray mineral which does not occur in a natural state. It is found in igneous rock, particularly in the minerals beryl and bertrandite. Formerly known as glucinium because of its sweet taste, the current name was officially adopted in 1957. Beryllium 's atomic number is 4, its atomic weight 9.0122, and its symbol is Be.

French chemist Nicolas Louis Vauquelin discovered beryllium in 1798. He identified the presence of the element in the gems, beryl and emerald. Thirty years later, both Friedrich Wöhler and A. A. B. Bussy isolated beryllium in separate research projects.

Science and industry have found many uses for beryllium. It is an attractive material for the aerospace industry because of its light weight, stability and high melting point of 2348.6 ° F (1,287° C). It has been used in making windshield frames, disc brakes and other components on spacecraft. Its ability to transmit x-rays makes it useful in the creation of x-ray tubes. As a composite material, beryllium is used to as a strengthen copper tools. It has a high elastic limit and is alloyed with nickel or iron to make springs.

Beryllium compounds have a variety of uses. Beryllium oxide is used as a refractory material. Other compounds are used in the refinement and synthesis of beryllium and beryllium salts. The only commercial beryllium mill in the world is in Utah. It produces beryllium by reducing it from beryllium fluoride and by electrolyzing it from beryllium chloride.

In the laboratory, beryllium can be bombarded by alpha particles and used as a source for isolating neutrons. In fact, it was instrumental in the research of Sir James Chadwick in 1932, when he discovered neutrons.

While beryllium itself is generally a safe substance, dust and fumes from beryllium compounds can be toxic, and lead to respiratory problems as well as dermatitis.

Beryllium is relatively scarce and as such it will be of limited use. It is part of a family of metals whose uses are highly technical.