Ytterbium Encyclopedia Article

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Ytterbium

Ytterbium is a lanthanide series, rare earth element denoted by the atomic symbol, Yb. It has an atomic number of ytterbium is 70 and its atomic weight is 173.04. The element is a bright, silvery metal with a melting point of 1,506.2°F (819°C) and a boiling point of 2,184.8°F (1,196°C). It is soft, ductile, and malleable.

In 1878, Jean-Charles Galissard de Marignac (1817-189) analyzed a rare earth material known as *erbia* and found that it consisted of two parts. He retained the name *erbia* for one part and called the other part *ytterbia*. A year later, the Swedish chemist, Lars Fredrik Nilson, showed that ytterbia itself is a mixture of two oxides, which he called *scandia* and *ytterbia*. Nilson is acknowledged as the discoverer of the element scandium and, sometimes, of the element *ytterbium*.

Other authorities reserve credit for the discovery of the latter element, however, for the French chemist Georges Urbain (1872-1938). Urbain showed in 1907 that Nilson's ytterbia was actually a mixture itself of two oxides. The first he named *lutecia* and the second, *neoytterbium*, in order, he said, "to leave the illustrious Marignac, in the future, the credit of his fundamental discovery." The name of the second element was eventually shortened, however, to *ytterbium*. Ytterbium is identical to *cassiopeium*, discovered at about the same time by Auer von Welsbach (1858-1929).

Ytterbium is found naturally in monazite sand. It makes up about 0.03% of this mineral. It can be isolated by ion-exchange or solvent extraction techniques. Few applications for this material have been found. It has been suggested that could be added to improve the strength characteristics of stainless steel.