Scandium Encyclopedia Article

Scandium

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Scandium

Scandium is the first element in Group 3 of the **periodic table**. It has an **atomic number** of 21, an atomic **mass** of 44.9559, and a chemical symbol of Sc.

Properties

Scandium is a silvery white metal that develops a slight pink or yellow tint when exposed to air. It has a melting point of 2,800°F (1,538°C), a **boiling point** of about 4,900°F (2,700°C), and a **density** of 2.99 grams per cubic centimeter. Scandium is chemically similar to other **rare earth elements**. It reacts readily with acids, but not with **oxygen**.

Occurrence and Extraction

Scandium has an abundance of about 5-6 parts per million. It appears to be more abundant in the Sun and in some stars than it is on Earth. It is found in more than 800 different minerals, the most important of which are thortveitite and wolframite. Scandium is produced as a byproduct of other industrial operations, such as the mining of fluorite and **tantalum** ores.

Discovery and Naming

The existence of an element with an atomic number of 21 was predicted in 1869 by Dmitri Mendeleev. Mendeleev developed the periodic table and found that no known element was available to fill the space between **calcium** (atomic number 20) and **titanium** (atomic number 22). Mendeleev predicted that element 21 would be discovered and announced the properties he anticipated for the element. About ten years later, the Swedish chemist Lars Nilson (1840-1899) found the element. He suggested the name scandium for the element in honor of the region known as Scandinavia.

Uses

Scandium has relatively few commercial uses, the most important being in alloys. Scandium adds low density, resistance to **corrosion**, and a high melting point to alloys. Such alloys have been found to be especially desirable in sporting equipment, such as baseball bats, lacrosse sticks, and bicycle frames. No compound of scandium has any important commercial use.