

Rubidium Encyclopedia Article

Rubidium

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Rubidium

Rubidium is the fourth member of the alkali metal family, consisting of elements in Group 1 of the **periodic table**. Its **atomic number** is 37, its atomic **mass** is 85.4678, and its chemical symbol is Rb.

Properties

Rubidium is a soft, silvery metal with a melting point of 102°F (39°C), a **boiling point** of 1,270°F (688°C), and a **density** of 1.532 grams per cubic centimeter. It is one of the most active elements, reacting vigorously with **oxygen**, **water**, acids, and the **halogens**. It is so active, in fact, that it is usually stored under some organic liquid in order to prevent it from combining explosively with oxygen in the air.

Occurrence and Extraction

Rubidium is a relatively common element with an abundance of about 35-75 parts per million. Its most common ores are lepidolite, carnallite, and pollucite. It is also found in seawater and in mineral springs. The pure metal is obtained by the **electrolysis** of molten rubidium chloride (RbCl): $2\text{RbCl} \xrightarrow{\text{electric current}} 2\text{Rb} + \text{Cl}_2$.

Discovery and Naming

Rubidium was discovered in 1861 by the German chemists Robert Bunsen and Gustav Kirchhoff. Bunsen and Kirchhoff contributed to the development of the science of **spectroscopy** and used that science to analyze a number of well-known substances. During this analysis, they observed spectral lines that could not be attributed to any known element and assumed that they had found a new element. They proposed the name of rubidium for the element because of the dark red **color** of the most prominent of its spectral lines. In Greek, the word for "deep red" is *rubidus*.

Uses

Rubidium and its compounds have relatively few uses. It has seen some application in the manufacture of atomic clocks for specialized purposes in which very precise time-keeping is essential. It is also used occasionally in the manufacture of photocells, although other **alkali metals** are usually preferred for this purpose.