Rubidium Encyclopedia Article

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Rubidium

Rubidium is an alkali metal element denoted by the atomic symbol Rb. Its atomic number is 37 and it has an atomic weight of 85.4678. It is a silvery-white, soft material which behaves chemically like potassium.

The story of rubidium's discovery can be traced back to the 1800's. In 1859 RobertBunsen and Gustav Kirchhoff began experiments in spectroscopy that eventually led to the discovery of two new elements. They had designed an instrument that could record the spectral lines observed when an element was burned or heated to incandescence. Since each spectral pattern is unique, the recordings can be thought of as elemental "fingerprints." Once the spectra for all the known elements were recorded, Bunsen and Kirchhoff noticed new spectra that could only belong to previously undiscovered elements. One of these elements was cesium and the other was rubidium.

Rubidium was named after the Latin word for red, because of the bright red lines in its spectral fingerprint. Although it is fairly common in the Earth's crust, rubidium is very rare in its pure form and is more often found as a component in an alkali compound, such as lepidolite. In its pure state, it reacts emphatically when mixed with certain substances. For example, because rubidium reacts so violently with air (igniting spontaneously in oxygen), it must be stored in hydrogen. Rubidium also reacts violently with water and ice, even at temperatures as low as-145° F (-100° C).

Often used in the manufacture of electron tubes, rubidium has recently found application in certain atomic clocks, such as the rubidium-gas cell clock. Rubidium has also been used in photoelectric cells and in the manufacture of certain catalysts. Since compounds of rubidium have a high level of conductivity, it may find use in thin film batteries.