Strontium is a group 2 element that does not occur as a free element due to its extreme reactivity with oxygen and water. It occurs naturally only in compounds with other elements such as strontianite. It is softer than calcium and decomposes water more vigorously. It has a silver appearance but then turns yellow with the formation of oxide.

**General Information**

- Atomic Number: 38
- Symbol: Sr
- Atomic weight: 87.62
- Electron shell configuration: [Kr]5s^2
- Melting Point (K): 1042
- Boiling Point(K): 1657

**Introduction**

The element strontium is named for a Scottish town, Strontian. It was isolated in 1808 by Davy and is a silvery and malleable metal that reacts vigorously with water to produce hydrogen gas. It has the same relative abundance as carbon and sulfur but does not occur in pure form.

**Characteristics**

Strontium is softer than calcium and decomposes vigorously in water. It is a silvery color but rapidly oxidizes to yellow due to the formation of strontium oxide. Because of its propensity for oxidation and ignition, strontium is stored typically under kerosene. Finely powdered strontium metal is sufficiently reactive to ignite spontaneously in air. It reacts with water quickly (but not violently like group 1 elements) to produce strontium hydroxide and hydrogen gas. Strontium and its compounds burn with a crimson flame and are used in fireworks.

**Applications**

Strontium compounds are useful in pyrotechnic devices and signal flares because of the bright crimson coloring they give to flames.

Strontium is used for producing glass for color televisions. It is also used in producing ferrite ceramic magnets and in refining zinc. Strontium atoms helped develop the world's most accurate atomic clock, which is accurate to one second in 200 million years. Toothpaste for sensitive teeth uses strontium chloride, and strontium oxide is used to improve the quality of pottery glazes. The isotope 90Sr is one of the world's best long-lived, high energy beta emitters known. It is also used in cancer therapy.
Strontium-90, a radioactive isotope of the metal produced by fission reactions is a dangerous environmental menace because its chemistry is similar to calcium and it may take its place in bones. The strong radiation emitted by the isotope interferes with the production of new blood cells and can cause death.

Contributors

• Stephen R. Marsden (ChemTopics)