

STRONTIUM

Element Symbol: **Sr**

Atomic Number: **38**



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Mineral samples from a lead mine in Scotland in 1787 aroused the curiosity of a doctor, Adair Crawford, who was looking for a new medicament. He named the material strontia (strontium oxide) after the mineral strontianite. Crawford published a paper in 1790, prompting Thomas Hope to investigate strontia. Hope proved the material contained a previously unknown element, noting it produced a red flame colour. Strontium metal was first isolated by Sir Humphrey Davey in London in 1808.

It is found in nature as the ores celestite (or selestine, strontium sulfate, SrSO_4) and strontianite (strontium carbonate, SrCO_3). The 16th most abundant element in the Earth's crust (370 ppm), strontium is also found in the human body, mostly in bones. In sea water (8 ppm) stony corals require it, and some creatures incorporate strontium into their shells as strontium sulfate.

Strontium is best known for its use in fireworks and flares, as strontium salts produce brilliant reds that are unique to strontium. The glass used for television screens and visual display units contains strontium carbonate. A radioisotope of strontium, strontium-90, gives off high energy gamma rays which can be used to generate an electric current. Thus strontium is used as batteries in navigation buoys, remote weather stations and in space vehicles. It is also used in gauges to measure thicknesses of paper, paints, plastic film and fabrics. Other strontium isotopes are used in medicine for diagnostic purposes as well as for radiopharmaceuticals.

Crystals of strontium titanate (SrTiO_3) are so shiny that they out-sparkle diamond! They are not used as gemstone, however as they are relatively soft and so are easily scratched.

Australian researchers working with strontium include Tony Allan and Dr David Whitford. Mr Allan is an expert in Strontium Isotope Stratigraphy and his research in marine sediments has helped uncover new petroleum resources. Dr Whitford has been investigating the use of strontium as a tracer in milk in order to discriminate between dairy products produced in different regions.

Provided by the element sponsor sponsor Russell Dempster

ARTISTS DESCRIPTION

This is a screen print. An isotope of strontium (strontium-90) is found in nuclear fallout. At 8.15am on August 6th 1945 clocks stopped in Hiroshima when the atomic bomb exploded. I have printed part of a destroyed Japanese city inside a clock face which has stopped at 8.15. Photos in this case (where used) were found on the web.

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