

Cesium Encyclopedia Article

Cesium

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Cesium

Cesium is the fifth member of the alkali family, the elements that make up Group 1 of the **periodic table**. Its **atomic number** is 55, its atomic **mass** is 132.9054, and its chemical symbol is Cs.

Properties

Cesium is a silvery white, shiny metal that is very soft and ductile. Its melting point is so low (83.3°F or 28.5°C) that it melts easily in the **heat** of a person's hand. Its **boiling point** is 1,301°F (705°C) and its **density** is 1.90 grams per cubic centimeter.

Cesium is a very active metal, one of the most active of all elements. It reacts violent with **oxygen** in the air and with **water**. So much **energy** is released in the latter reaction that the **hydrogen** formed as a product ignites. Cesium is normally stored under **kerosene** as a safety precaution to prevent it from reacting with oxygen or water vapor in the air. Cesium also reacts vigorously with acids, the **halogens**, **sulfur**, and **phosphorus**.

Occurrence and Extraction

Cesium is moderately abundant in the Earth's crust with an estimated abundance of about 1-3 parts per million. It is found in an ore of **lithium** called lepidolite but, most abundantly, in the ore known as pollucite ($\text{Cs}_4\text{Al}_4\text{Si}_9\text{O}_{26}$).

Discovery and Naming

Cesium was discovered in 1861 by two German chemists, Robert Bunsen and Gustav Kirchhoff. The two had been instrumental in developing the new analytical technique of **spectroscopy**, and they found spectral lines for a previously unidentified element while studying a sample of spring water. They suggested the name cesium, from the Latin word *caesius* meaning "sky blue" because blue is the **color** of the element's spectral lines.

Uses

Cesium and its compounds have relatively few commercial uses. It is used in photovoltaic cells that convert the energy of sunlight into **electricity**. It is also used in the cesium clock, a device that measures time by means of the wavelength of light given off by one of the elements isotopes, cesium- 133.