



DIANE FOSTER

CADMIUM

Element Symbol: **Cd**

Atomic Number: **48**

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Cadmium, with the symbol Cd and atomic number 48, is a soft, bluish-white metal, chemically similar to the two other metals in group 12, zinc and mercury. It was discovered by Friedrich Stromeyer (1776–1835) and Karl Samuel Leberecht Hermann (1765–1846) in 1817, while they were each studying zinc compounds. Cadmium is an impurity in zinc compounds, although represented in very small quantities. It derives its name from the Latin word for calamine, citing its discovery in this particular zinc compound.

In 1927, the International Conference on Weights and Measures defined the meter relative to the red cadmium spectral line; that is, 1 metre in length is equal to 1,553,164.13 times the wavelengths of the red cadmium line.

After the industrial scale production of cadmium started in the 1930s and 1940s the major application was the coating of iron and steel to prevent corrosion. It has also found use in electroplating, as a source for blue-ultraviolet lasers, as a phosphore in television picture tubes, as a pigment in various paints, as luminescent quantum dots, as a semiconductor, and as a stabilizer in plastics.

In 2009, 86% of all the cadmium is used in batteries, predominantly in rechargeable nickel-cadmium batteries. Nickel-cadmium cells have a nominal cell potential of 1.2 V. Even though cadmium and its compounds may be toxic in certain forms and concentrations, the British Pharmaceutical Codex from 1907 states that cadmium iodide was used as a medication to treat “enlarged joints, scrofulous glands, and chilblains”.

Provided by the element sponsor Amanda Lee

ARTISTS DESCRIPTION

I discovered that cadmium occurs naturally in zinc ores and is a by product of zinc smelting. As my work has included research and visits to Nyrstar, I was particularly interested in this.

Cadmium is a soft, bluish-white metal and is easily cut with a knife. It is used in low melting point alloys and as a corrosion resistant coating on other metals.

It is an important constituent of paint and is used in cadmium batteries. I didn't realise it was so highly toxic.

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