Chromium Encyclopedia Article

Chromium

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Contents

Chromium Encyclopedia Article.....1

Contents.....2

Chromium.....3

Chromium

Chromium is a metal element denoted by the atomic symbol Cr. Its atomic number is 24 and its atomic weight is 51.996. It has a melting point of 3464.6 °F (1907 °C) and a boiling point of 4839.8 °F (2671 °C).

Chromium was discovered by the French chemist Nicolas Louis Vauquelin in 1797. Its name is derived from *chroma* (the Greek word for color) and was suggested by Vauquelin 's colleague, Antoine Francois de Fourcroy (1755-1809), because of the variety of color in chromium compounds. In 1898, German chemist Johann Goldschmidt discovered that metals in an impure state, including chromium, can be purified by the vigorous reaction that results from mixing them with oxides.

Chromium's principle ore is chromite which is mined in southern Africa, Siberia, the Middle East, Madagascar, Finland, the Philippines, and Albania. In its pure state, chromium has a blue-gray color and can be polished into a lustrous shine. In both its pure and alloyed forms, chromium has many uses. Chrome, which is a yellow pigment derived from lead chromate, is popular in trim for automobiles and modern furniture.

Dye makers use chromium compounds as mordant-substances used for fixing dyes in the textile industry. The high melting point of chromium and its resistance to expansion when heated makes chromite attractive as a brick molding material. Tinted glass is colored by chromium. One of the most common uses of chromium is as a composite for strengthening steel, in particular stainless steel. In stainless steel, chromium is alloyed with steel and nickel to produce a metal that is highly resistant of corrosion (scaling) and oxidation. A minimum of ten percent chromium is required for stainless steel; eighteen percent is the normal proportion.

Chromium is highly toxic. An exposure limit of 0.1 mg per cubic meter per day has been established for individuals who work with the element in mills and laboratories.