

24

51.996

Cr

Chromium

 $[Ar] 3d^5 4s^1$

Transition Metals

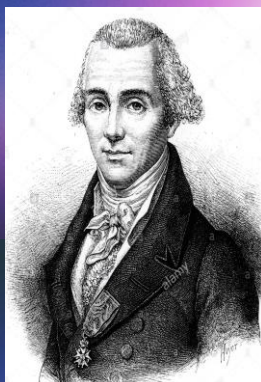
ChemistryLearner.com

CHROMIUM

(Greek origin; Chroma meaning colour)

Discovery and origin

Chromium was discovered by French chemist Nicolas-Louis Vauquelin in 1797 from a sample of the mineral crocoite (lead chromate). He reacted chromium trioxide (Cr_2O_3) with charcoal (carbon), which yield needlelike crystals of chromium metal. Although it wasn't purified until the 18th century, people had been using chromium compounds for thousands of years. The Qin Dynasty of China used chromium oxide on their weapons. Although it's unclear whether they sought the color of the compounds or the properties, the metal did protect the weapons from degradation.



The name "chromium" was proposed by French chemists Antoine-François de Fourcroy and René-Just Haüy. This reflects the colorful nature of chromium compounds and the popularity of its pigments, which may be found in yellow, orange, green, purple, and black. The color of a compound may be used to predict the oxidation state of the metal.

Properties-

Chromium is a lustrous, brittle, hard metal. Its colour is silver-gray and it can be highly polished. It does not tarnish in air, when heated it burns and forms the green chromic oxide. Chromium is unstable in oxygen, it immediately produces a thin oxide layer that is impermeable to oxygen and protects the metal below.

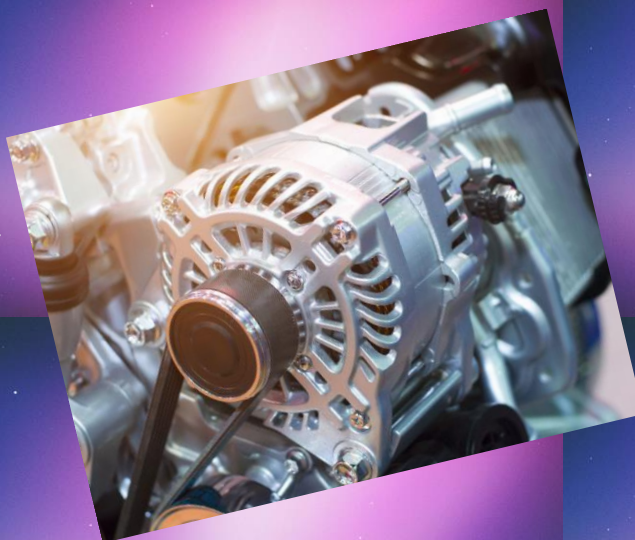
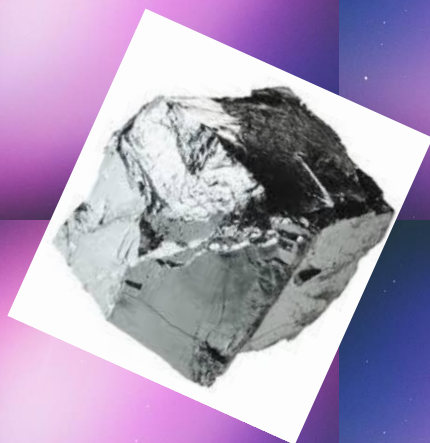
Uses-

Chromium is used in stainless steel, and other alloys. Chromium plating, for example on cars and bicycles, produces a smooth, silver finish that is highly resistant to corrosion.

*Prakriti Pandita*

FUN FACTS

- **It's Used in Stainless Steel**
- **It Doesn't Rust**
- **It's the Hardest Metal**
- **It Reflects Nearly 70% of Visible Light**
- **It Was Discovered In the 18th Century**
- **The Qin Dynasty of China used chromium oxide on their weapons.**
- **Chromium has been used as dye for paintings since antiquity.**
- **The world's largest chromium producers are South Africa, with approximately 48% of global production**



ISOTOPES OF CHROMIUM

<i>Isotope</i>	<i>Atomic mass</i>	<i>Natural abundance (%)</i>	<i>Half life</i>	<i>Mode of decay</i>
<i>^{50}Cr</i>	<i>49.946</i>	<i>4.345</i>	<i>$> 1.3 \times 10^{18} \text{ y}$</i>	<i>$\beta + \epsilon$</i>
<i>^{52}Cr</i>	<i>51.941</i>	<i>83.789</i>	<i>-</i>	<i>-</i>
<i>^{53}Cr</i>	<i>52.941</i>	<i>9.501</i>	<i>-</i>	<i>-</i>
<i>^{54}Cr</i>	<i>53.939</i>	<i>2.365</i>	<i>-</i>	<i>-</i>

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