

Causes, Uses and India's Concerns

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Insights Editor

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Subject: Economics

Context: Copper prices touched a record high of over USD 12,000 per tonne in 2025, driven by US tariff uncertainty, [global supply disruptions](#) and surging demand from AI, clean energy and EVs.



About Copper:

What it is?

- Copper (Cu) is a naturally occurring metallic element (Atomic number: 29) known for its excellent electrical and [thermal conductivity](#).

- It is among the oldest metals used by humans and is central to modern industrial, digital and green economies.

Characteristics of Copper:

Chemical characteristics:

- **Symbol:** Cu and **Atomic weight:** 63.546 amu
- High resistance to corrosion and oxidation
- Forms [important alloys](#) such as **brass (Cu+Zn)** and **bronze (Cu+Sn)**

Physical characteristics:

- Excellent **electrical and thermal conductivity** (second only to silver)
- Ductile and malleable, enabling easy wiring and shaping
- Naturally reddish-brown; one of the few coloured metals

Unique properties:

- **100% recyclable** without loss of quality
- **Antimicrobial** in nature, useful in healthcare settings
- Enhances [energy efficiency](#), reducing CO₂ emissions over product life cycles

Applications of Copper:

- **Energy and power sector:** Used extensively in power grids, transformers, renewable energy systems, and battery storage.
- **Electric vehicles (EVs):** EVs use over twice the copper of conventional vehicles due to motors, batteries and wiring.
- **Digital and AI infrastructure:** Data centres, especially hyperscale AI facilities, require massive copper volumes for cooling and power transmission.
- **Construction and manufacturing:** Plumbing, roofing, industrial machinery and electronics rely heavily on copper.
- **Defence and healthcare:** Used in defence electronics, ammunition and antimicrobial medical surfaces.

India and Copper: Current Status

- India is recognised copper as a [critical mineral](#) under its resource strategy.
- Over **90% dependence on imported copper concentrate**

Major producers across globe: Chile, Peru, DR Congo, China, USA