



Indian Standard IS 1897:2008: Copper strip for electrical purposes : Specification

Copper is a soft , malleable and ductile metal with a very high thermal and electrical conductivity. Other than Gold, Copper is the only metal that has its natural colour. Other metals are either gray and white. The pure Copper is second only to Silver in **thermal and electrical conductivity**. Copper can be recycled without the loss of properties making it logical choice in an era of global sustainability.

There are various methods for refining of Copper such as electrolytic refining , electrolytic winning , fire refining etc. The standard IS 191 ; Copper specification specifies the chemical composition and physical properties for various types of copper in refinery shapes (e.g. wire bars, cakes , billets and ingots). These shapes are intended for further fabrication and alloying.

Due to its high purity and high thermal and electrical conductivity **Cu- ETP** : Electrolytic tough pitch copper and **Cu- FRHC** : Fire Refined high conductivity Copper grades mentioned in IS 191 are further drawn or rolled to manufacture Copper strips .These Copper strips are made either in annealed , half hard or hard condition.

Common applications of Copper Strips in Electrical Purposes :

1. Busbars :

Copper strips are extensively used in power distribution systems as busbars , ensuring reliable and efficient current flow in industrial and commercial settings.

2. Transformers and Switchgear:

They are utilized for windings and connectors due to their high current-carrying capacity and durability.

3. Earthing and Grounding:

Copper strips serve as effective grounding materials in electrical systems to protect equipment and personnel from faults.

4. Motors and Generators:

Copper strips are used in windings and components, enabling efficient energy conversion.

5. Cables and Conductors:

In insulated or bare forms, copper strips are employed in various types of cables for signal transmission and power distribution.

In the standard requirements of chemical composition, mechanical properties , electrical resistivity test, dimensions and tolerances are mentioned. The standards also mentions the criteria for sampling to be followed for establishing conformity , packing and marking requirements.

By balancing cost, conductivity, and durability, copper strips remain a cornerstone material for modern electrical and electronic systems.