



## Description

It is believed that Copper has been mined for over 5000 years. It can be found in elemental form and in the minerals cuprite, malachite, azurite, chalcopyrite and bornite. Copper is also often found as a by-product of silver production. Next to Silver, Copper is the next best conductor of electricity. It has yellow/gold colour that can be polished to a bright metallic lustre. It is tough, ductile and malleable. Copper has a disagreeable taste and a peculiar smell. Copper is resistant to corrosion in most atmospheres including marine and industrial environments. It is corroded by oxidising acids, halogens, sulphides and ammonia based solutions. The product is phosphorous de-oxidised non-arsenical copper that is 99.9% pure

## Applications

- Refrigeration
- Gutters and roofing
- Gas plants
- Hydraulic, air and oil lines
- Air Conditioning and refrigeration
- Heater units and burners tubes Consumer
- Plumbing pipe and fittings

## Generic Physical Properties

Density	: 8.92 g/cm <sup>3</sup>
Melting Point	: 1,083°C
Thermal Expansion	: 16.9 × 10 <sup>-6</sup> /K
Modulus of Elasticity	: 117 GPa
Thermal Conductivity	: 391.2 W/m.K
Electrical Resistivity	: 0.0203 × 10 <sup>-6</sup> Ω .m

## Mechanical Properties

Proof Stress	: 50-340 MPa
Tensile Strength	: 200-360 MPa
Elongation A50 mm	: 50-5%
Hardness Vickers	: 40 to 110 HV

\*Mechanical properties vary widely according to condition (soft/half hard/etc)

## Corrosion Resistance

Corrosion resistance is either good or excellent in most environments and atmospheres other than those containing ammonia ions

## Cold Working

The product has an excellent response to cold working.

## Hot Working

With forging of brass rated as 100, the hot forge ability of the product is rated at 65. Hot working temperatures should be between 760°C and 870°C

## Heat Treatment

Solution treatment or annealing can be done by rapid cooling after heating to 370-650°C.

## Machinability

This alloy has a machinability rating of 20 when Brass of the product is 100.

## Weldability

Deoxidation of the product improves embrittlement resistance during welding. Brazing and soldering are both excellent joining methods for the product. Gas shielded arc welding is also excellent. Oxyacetylene welding and butt welding are good. Welding methods not recommended include:

- Coated metal arc welding
- Spot welding
- Seam welding

## Part Number Table

Description	Part Number
Copper Sheet, Half Hard, 2ft x 1ft, PK 4	C106

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