

Electrolytic Tough Pitch Copper (ETP) C101 / CW004A is a commercially pure high conductivity grade of copper refined by electrolytic deposition which is then melted and oxidised to the "tough pitch" condition with a controlled low oxygen content. This is the most widely used of all the coppers because of its combination of electrical and thermal conductivity, corrosion resistance, workability and aesthetic beauty.

C101 / CW004A is the normal grade for general electrical use as busbar, motor and transformer components, windings and many other current carrying applications. It is also very popular with architects for applications where the corrosion resistance is required for building applications. Over time the C101 will also develop the weathered copper, green patina, appearance that offers additional corrosion resistance and a desirable look.

The use of this alloy in elevated temperature environments can be limited due to oxygen being present in the form of  $\text{Cu}_2\text{O}$ . This can cause the alloy to be susceptible to hydrogen embrittlement in reducing gasses or when welding or brazing using an oxy-fuel gas flame.

### Chemical Composition

Copper	99.90 min
Oxygen	0.005 – 0.040
Total Imps	0.03% max (excl. $\text{O}_2$ & Ag)

### Related Specifications

- C11000 ETP
- BS1433
- BS13601 CW004A
- Cu-ETP
- DIN 2.0060

### Key Features

- Very High Electrical Conductivity
- Excellent formability
- Very Good Thermal Conductivity
- Excellent Joining Characteristics

### Typical Physical Properties

Melting Point	1083°C
Density	8.92 g/cm <sup>3</sup>
Specific heat	385 J/Kg °K
Thermal conductivity	393 W/m°K
Thermal expansion coefficient (20-200°C)	17.3 x 10 <sup>-6</sup> Per °C
Electrical conductivity	100 % IACS
Electrical Resistivity	0.0172 x10 <sup>-6</sup> microhm /m
Modulus of elasticity	118000 N/mm <sup>2</sup>

### Fabrication Properties

