

Data Sheet

OFE COPPER - C110/CW009A

C110/CW009A is a very high purity certified grade of oxygen free copper for electronic type applications. The material is manufactured from pure cathode copper and poured in a protective gas atmosphere. It has a minimum copper content of 99.99% and offers a minimum electrical conductivity of 101.5% IACS. To ensure a resistance to hydrogen embrittlement the maximum oxygen content is restricted to 5 ppm with other individual impurity values limited to 25 ppm.

The combination of the highest available thermal and electrical conductivity values, an excellent formability, an adherent oxide film and excellent joining/welding properties it can be utilised in the electrical and high vacuum industries as well.

Key Features:	
Very high purity	
Highest conductivity values	
Excellent formability	
Freedom for hydrogen embrittlement	
Excellent joining characteristics	
Related Specifications:	
C110	CW009A
C10100 OFE	Cu-OFE
BS3839	Cu-C2
Chemical Composition:	
Copper	99.99% min
Phosphorus	0.0003% max
Sulphur	0.002% max
Lead	0.0015 max
Total others	0.0050% max (incl. As, Sb, Bi, Cd, Mn, Se, Te, Zn - no single impurity shall exceed 0.0025%)

Typical Uses:

Traditional uses for C110/CW009A OFE copper include material for vacuum capacitors and circuit breakers, gaskets for vacuum apparatus, magnetrons, bases for semi-conductors, electronic components, anodes, electrical instruments, rotor conductors for large capacity generators and motors, electrical and electronic components at cryogenic temperatures.

Typical Physical Properties:	
Melting point	1083°C
Density	8.94 g/cm ³
Specific heat	385 J/Kg °K
Thermal conductivity	399 W/m°C
Thermal expansion coefficient (20 - 200°C)	17.3 x 10 ⁻⁶ per °C
Electrical conductivity	101.5% IACS
Electrical resistivity	0.017 microhm/m
Modulus of elasticity	118 000 Kg/mm ²
Fabrication Properties:	
Hot working temperature range	728 - 825°C
Hot formability	Good
Cold formability	Good
Cold reduction between anneals	70% max
Machinability rating (free cutting brass=100)	85 - 90%
Joining Methods	
Soldering	Excellent
Brazing	Excellent
Oxy-acetylene welding	Good
Gas-shielded arc welding	Excellent
Resistance welding: Spot and seam butt	Not recommended - Good