

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:		Typical Physical Properties:	
Very high purity		Melting point	1083°C
Highest conductivity values		Density	8.94 g/cm ³
Excellent formability		Specific heat	385 J/Kg °K
Freedom for hydrogen embrittlement		Thermal conductivity	399 W/m°C
Excellent joining characteristics		Thermal expansion coefficient (20 - 200°C)	17.3 x 10 ⁻⁶ per °C
Related Specifications:		Electrical conductivity	101.5% IACS
C110	CW009A	Electrical resistivity	0.017 microhm/m
C10100 OFE	Cu-OFE	Modulus of elasticity	118 000 Kg/mm ²
BS3839	Cu-C2	Fabrication Properties:	
Chemical Composition:		Hot working temperature range	728 - 825°C
Copper	99.99% min	Hot formability	Good
Phosphorus	0.0003% max	Cold formability	Good
Sulphur	0.002% max	Cold reduction between anneals	70% max
Lead	0.0015 max	Machinability rating (free cutting brass=100)	85 - 90%
Total others	0.0050% max (incl. As, SB, Bi, Cd, Mn, Se, Te, Zn - no single impurity shall exceed 0.0025%)	Joining Methods	
		Soldering	Excellent
		Brazing	Excellent
		Oxy-acetylene welding	Good
		Gas-shielded arc welding	Excellent
		Resistance welding: Spot and seam butt	Not recommended - Good

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.