Wieland-K46
Cu-ETP1/CW003A

Material designation
EN Cu-ETP1
UNS C11000

Chemical composition*
Cu > 99.99 %
oxygen free not desoxidized ≤ 140 ppm

Physical properties*
Electrical conductivity MS/m ≥ 58
%IACS ≥ 100
Thermal conductivity W/(m·K) > 385
Thermal expansion coefficient (0–300 °C) 10^-6 17.7
Density g/cm^3 8.93
Moduls of elasticity GPa 127

*Reference values at room temperature

Material properties and typical applications
Wieland-K46 is a copper with a low oxygen content. It exhibits good electrical and thermal conductivity. Due to the oxygen content its use at an elevated temperature in a reducing atmosphere is critical, especially if a hydrogen-containing atmosphere (hydrogen embrittlement) is concerned. This means there are certain restrictions during annealing as well as welding and soldering. Main applications are within the superconductor technology.

This material is more pure than C11000. As K46 is a selected variant of K16, very high RRR values can be achieved RRR (293K/4,2K) ≥ 460.

Chemical composition*
Cu ≥ 99.99 %
oxygen free not desoxidized ≤ 140 ppm

*Reference values in % by weight

Types of delivery
The BU Extruded Products supplies bars, wire, sections and tubes. Please get in touch with your contact person regarding the available delivery forms, dimensions and tempers.

Fabrication properties
Machinability (CuZn39Pb3 = 100 %) 20 %
Capacity for being cold worked excellent
Capacity for being hot worked fair

Joining
Resistance welding (butt weld) good
Inert gas shielded arc welding fair
Hard soldering good
Soft soldering excellent

Surface treatment
Polishing mechanical
good
Electrolytic excellent
Electroplating excellent

Corrosion resistance
Pure copper and high-copper alloys generally exhibit good corrosion resistance due to their inert character and are practically insensitive to stress corrosion cracking.

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Product standards
Wire EN 13602
Section EN 13605