CuOFE

EN_2024_11

Comparable standards: UNS C10100 • EN CW009A

Aurubis designations: PNA 203

Description

PNA203 Cu-OFE wire material is a high-purity, oxygen-free copper with high electrical conductivity. It is not susceptible to hydrogen disease (embrittlement) when heated in a hydrogenous atmosphere.

Composition

Cu [%]
min.99.99

Composition of this alloy is in accordance with RoHS for electric & electronic components and ELV for the automotive industry.

Physical properties

Melting point [°C]	Density [g/cm³]	c_p @ 20°C [kJ/kgK]	Young's modulus [GPa]	Thermal cond. [W/mK]	Electrical cond. [MS/m]	Electrical cond. [%IACS]	α @20-300°C [10^{-6}/K]
1083	8.94	0.394	127	394	58	100	17.7

Note: The specified conductivity applies to the soft condition only.

c_p specific heat capacity

α coefficient of thermal expansion

Mechanical properties

	Diameter [mm]	Tensile Strength [MPa]	Yield Strength [MPa]	Elongation A [%]	Hardness HV [-]
R200 H035	2.0-18	>200	<120	35	35-65
H065	2.0-14.5				70-95
R250	2.0-10.0	>250	>200	12	
R250	10.0-14.5	>250	>180	15	
H085	2.0-14.5				90 - 115
R300	2.0-14.5	>300	>260	8	
R350 H100	2.0-10.0	>350	>320	5	>110

Other tempers are available upon request.

Fabrication properties

Machinability*	20%
Cold formability	excellent
Hot formability	good
Resistance welding	good
Oxyacetylene welding	bad
Inert gas shield arc welding	good
Brazing	excellent
Soldering	excellent

*The evaluation of machinability is not an absolute measured value. It rather is a comparative rating (CuZn39Pb3=100%). Ratings from other sources might be different.

Heat treatment

Melting range	1083 °C
Hot working	750-950 °C
Soft annealing	250-500 °C
Thermal stress relieving	150-200 °C

Corrosion Resistance

CuOFE has a good resistance in natural atmosphere (also sea air) and industrial atmosphere. It has also a good resistance to drinking water, custom water, watery and alkaline solutions (without oxidation means), pure steam, oxidising acids (without oxidants), neutral salt solutions and heat treatment in reducing atmosphere. Cu-OFE is not resistant to solutions that contain cyanides, halogenides, oxidising acids, damp ammonia and halogenated gases, hydrosulphide and seawater.

Typical uses

Electrical engineering, Busbars, Conductors, Transistor Components.

Types of delivery

Please get in touch with your contact person about the available shapes, dimensions and conditions.