

CuETP

EN_2024_06

Comparable standards: UNS C11000 • EN CW004A
 Aurubis designations: PNA 213

Description PNA 213 Cu-ETP wire material is a product manufactured using the conform process from Cu-OFE. It differs from standard Cu-ETP due to its significantly reduced oxygen content and thus combines the advantages of Cu-OFE. This material shows no abnormalities with regard to hydrogen embrittlement

Composition

Cu	O
[%]	[%]
min.99.9	max.0.002

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

Physical properties

Melting point	Density	c _p @ 20°C	Young's modulus	Thermal cond.	Electrical cond.		α @20-300°C
					[MS/m]	[%IACS]	
[°C]	[g/cm ³]	[kJ/kgK]	[GPa]	[W/mK]			[10 ⁻⁶ /K]
1083	8.94	0.394	127	390	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	Tensile Strength	Yield Strength	Elongation A	Hardness HV
	[mm]	[MPa]	[MPa]	[%]	[-]
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 H085	10.0-14.5	>250	>180	15	90-115
R300	2.0-14.5				
R350 H100	2.0-14.5	>300	>260	8	>110

Other tempers are available upon request.

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

Cu-ETP has a good resistance in natural atmosphere. It has also a good resistance to drinking water, custom water, watery and alkaline solutions (except for solutions including cyanides, halogenides and ammonia), pure steam, oxidising acids (without solute oxygen) and neutral salt solutions. Cu-ETP is not resistant to solutions that contain cyanides, halogenides, oxidising acids, damp ammonia and halogenated gases, hydrosulphide and seawater. It is also not resistant to heat treatment in reducing atmosphere (hydrogen disease).

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.

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