

CuZn0.5

20 03

Comparable standards: EN CW119C
 Aurubis designations: PNA 218

Description CuZn0.5 is a copper alloy deoxidized by the addition of zinc. The alloy has good electrical conductivity (min. 82% IACS) and an improved strength, compared to pure copper. The alloy has very good welding and soldering properties because it is largely insensitive to hydrogen embrittlement. Fields of application are metal ware, components of electrical engineering, architecture and apparatus engineering.

Composition

Cu	Zn	P
[%]	[%]	[%]
rem	0.1-1.0	0.02 max

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
[°C]	[g/cm ³]	[kJ/kgK]	[GPa]	[W/mK]	[MS/m]	[%IACS]	[10 ⁻⁶ /K]
1081	8.92	0.386	127	350	≥ 48	≥83	17.7

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

c_p specific heat capacity
 α coefficient of thermal expansion

Mechanical properties

	Tensile Strength	Yield Strength	Elongation A ₅₀	Hardness HV	Bend ratio 90° [r]	
	[MPa]	[MPa]	[%]	[-]	GW	BW
R220	220-260	≤ 140	≥ 33	40-65	0	0
R240	240-300	≥ 180	≥ 8	65-95	0	0
R290	290-360	≥ 250	≥ 4	85-115	0	0
R360	≥ 360	≥ 320	≥ 3	≥ 110	0.5	1

r = x * t (thickness t ≤ 0.5mm)
 GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction.

Fabrication properties

Cold formability	excellent
Hot formability	excellent
Soldering	excellent
Brazing	good
Oxyacetylene welding	fair
Gas shielded arc welding	good
Resistance welding	not recommended
Machinability	not recommended

Electrical conductivity

The electrical conductivity depends on chemical composition, the level of cold deformation and the grain size. A high level of deformation as well as a small grain size decrease the conductivity.

**Corrosion
Resistance**

Copper is resistant to: Natural and industrial atmospheres as well as maritime air, drinking and service water, non oxidizing acids, alkaline solutions and neutral saline solutions.
Copper is not resistant to: Ammonia, halogenide, cyanide and hydrogen sulfide solutions and atmospheres, oxidizing acids and sea water (especially at high flow rates).

Typical uses

Components of electrical engineering, architecture, apparatus engineering, metal ware

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