

C10100 (Cu-OFE) 18 08 US

Comparable standards: UNS C10100 • EN CW009A • JIS C1011
 Aurubis designations: C101 • PNA203

Description Oxygen-Free, High Conductivity Copper Cu-OFE (99.99 % minimum Cu) offers the advantages of both Electrolytic Tough Pitch Copper (ETP) and Phosphor deoxidized Copper. The high purity and absence of deoxidizers accounts for electrical conductivity of 100 % IACS as well as no susceptibility for hydrogen embrittlement. Due to the absence of oxides in the structure, Cu-OFE is capable of withstanding extra deep drawing and severe forming and is superior to Cu-ETP in this respect. Cu-OFE is favored for very critical electrical, electronic and communication applications.

Composition

Cu*	O ₂
[%]	(ppm)
99.99 min	5 min

*) Incl. Ag

Physical properties

Melting point	Density	Specific heat cap. at 20°C	Electrical cond.	Thermal cond. at 20°C	Mod. of elasticity	Coef. of therm exp. at 20°C
[°F] [°C]	[lb/in ³] [g/cm ³]	[Btu/lb°F] [kJ/kgK]	[%IACS] [MS/m]	[Btu/ft h °F] [W/mK]	x1000 ksi [GPa]	[10 ⁻⁶ /°F] [10 ⁻⁶ /K]
1981 1083	0.323 8.90	0.092 0.394	101 59	226 391	17 117	9.8 17.6

The specified conductivity applies to the soft condition only

Mechanical properties

Temper	Tensile strength Rm	Yield strength Rp0.2 nominal	Elongation 2" nominal	Hardness Nominal HR30T HV	min bend ratio 90°		min. bend ratio 180°	
					GW	BW	GW	BW
Soft	26-38 179-262	10 69	35		0.0	0.0	0.0	0.0
H02 (1/2H)	37-46 255-317	37 255	20	50 90	0.0	0.5	0.0	1.0
H04 (H)	43-52 297-359	45 310	8	58 100	1.0	2.0	2.0	3.0
H06 (EH)	47-56 324-386	50 349	3	60 105	2.0	3.0	2.5	
H08 (SH)	50-58 345-400	52 359	3	63 110	3.0		4.0	
H10 (ES)	52 min 359 min	54 373	2	61 min 112				

Other tempers are available upon request.
 GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction

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Fabrication properties	Electrical and thermal conductivity	superior
	Corrosion resistance	excellent
	Resistance to hydrogen embrittlement	good
	Cold formability	good

Typical uses Radar components, electrical and electronic conductors, contacts and terminals, printed circuits, carrier tapes, flat-type cables, flexible circuits, terminal lugs

Applicable specifications ASTM B152, ASME SB152