C19700 (CuFe0.7MgP)

18 08 US

Comparable standards: UNS C19700 ● JIS C1921
Aurubis designations: C197 ● PNA205

Description

CuFe0.7MgP is a precipitation-hardened copper alloy. It combines extra high electrical conductivity with comparable strength and relaxation behaviour like CuFe2P. This is possible due to the reduction of the iron content and the edition of magnesium.

Composition

Cu* [%]	Fe [%]	P [%]	Mg [%]
rem.	0.30 – 1.20	0.10 – 0.40	0.01 – 0.20

Physical properties

Melting point [°F] [°C]	Density [lb/in³] [g/cm³]	Specific heat cap. at 20°C [Btu/lb°F] [kJ/kgK]	Electrical cond. [%IACS] [MS/m]	Thermal cond. at 20°C [Btu/ft h °F] [W/mK]	Mod. of elasticity x1000 ksi [GPa]	Coef. of therm exp. at 20°C [10^{-6}/°F] [10^{-6}/K]
1987 1086	0.319 8.84	0.092 0.385	80 46	185 320	16.7 115	9.6 17.3

The specified conductivity applies to the soft condition only

Mechanical properties

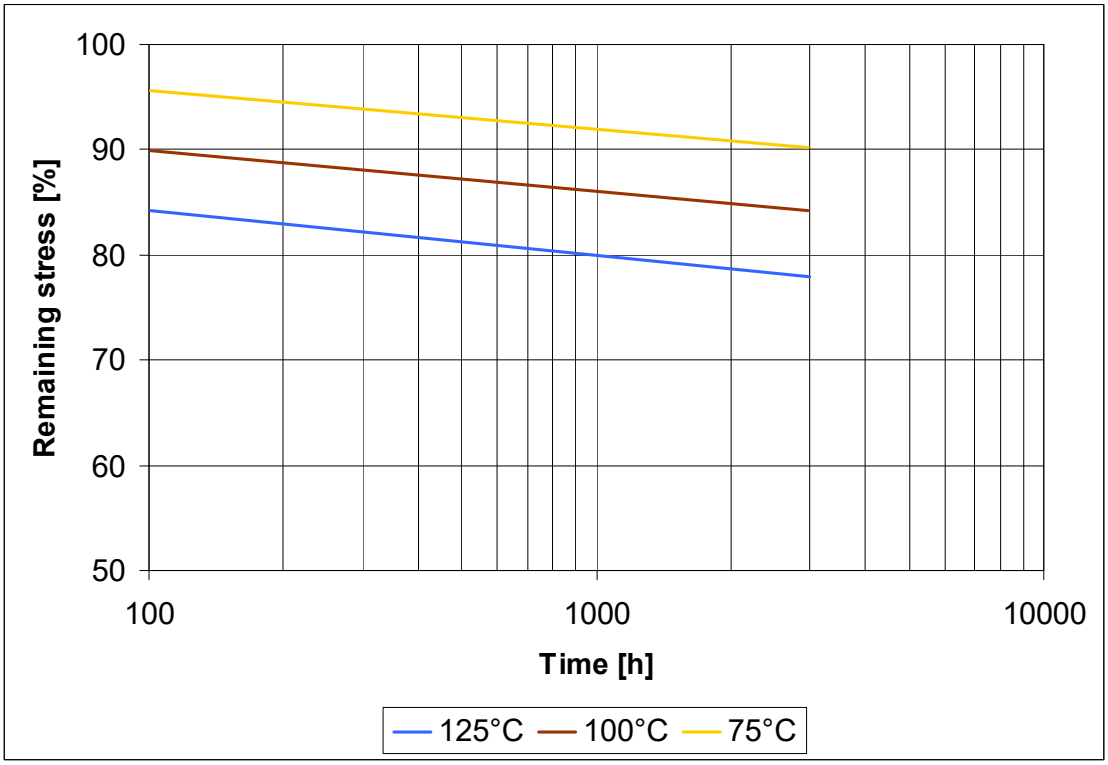
	Tensile strength Rm [ksi] [MPa]	Yield strength Rp0.2 min [ksi] [MPa]	Elon-gation 2" min [%]	Hard-ness HV [-]	min bend ratio 90°		min. bend ratio 180°	
					GW	BW	GW	BW
Soft	43-53 295-365	> 16 > 110	20					
H02	53-63 365-435	> 36 > 250	6					
H04	60-70 415-485	> 53 > 365	2					
H06	67-73 450-505	> 64 > 440	2					
H08	70-76 485-525	> 67 > 460	2					
H10	73-80 505-550	> 70 > 485	1					

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

Fabrication properties

Soldering	excellent
Gas shielded arc welding	excellent
Resistance Welding	good
Machinability	not recommended
Cold formability	good

Stress Relaxation resistance



Stress remaining as a function of temperature and time. Initial stress 0.5 Rp0.2. Measured on stress relief annealed specimens. Temper H06.

Typical uses

Automotive, Components of electrical engineering, Connectors, Clamp ports, Clamp-Connections, Leadframes, Relays- and conductor Springs, Spring rings, Pressure gauge Springs, Retaining Clamps