

C19400 (CuFe2P) 18 08 US

Comparable standards: UNS C19400 • EN CW107C • JIS 1940
 Aurubis designations: C194 • PNA212

Description CuFe2P offers a combination of higher strengths than ETP copper, excellent electrical and thermal conductivity and good fatigue strength. They alloy can be used for contacts and connectors as well as telecommunication cables and fasteners. These and many other applications attest to its excellent formability and corrosion resistance.

Composition

Cu	Fe	P	Zn	Pb
[%]	[%]	[%]	[%]	[%]
97.0 min	2.1 – 2.6	0.015 - 0.15	0.05 – 0.20	0.03 max

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]
1990 1088	0.322 8.91	0.092 0.386	65 38	150 259	17.5 121	9.8 17.6

The specified conductivity applies to the soft condition only

Mechanical properties

Temper	Tensile strength Rm	Yield strength Rp0.2	Elongation 2'' min	Hard-ness HV nominal	min bend ratio 90°		min. bend ratio 180°	
					GW	BW	GW	BW
	[ksi] [MPa]	[ksi] [MPa]	[%]	[-]				
Soft	40-63 275-435	16 110	10	-	0	0	0	0
H02	53-63 365-435	36 250	6	125	0	0	0	0
H04	60-70 415-485	53 365	3	138	1	1.5	1	1.5
H06	67-73 460-505	64 440	2	143	1.5	2	1.5	2
H08	70-76 485-525	67 460	2	145	-	-	-	-
H10	73-80 505-550	70 485	1	147	-	-	-	-

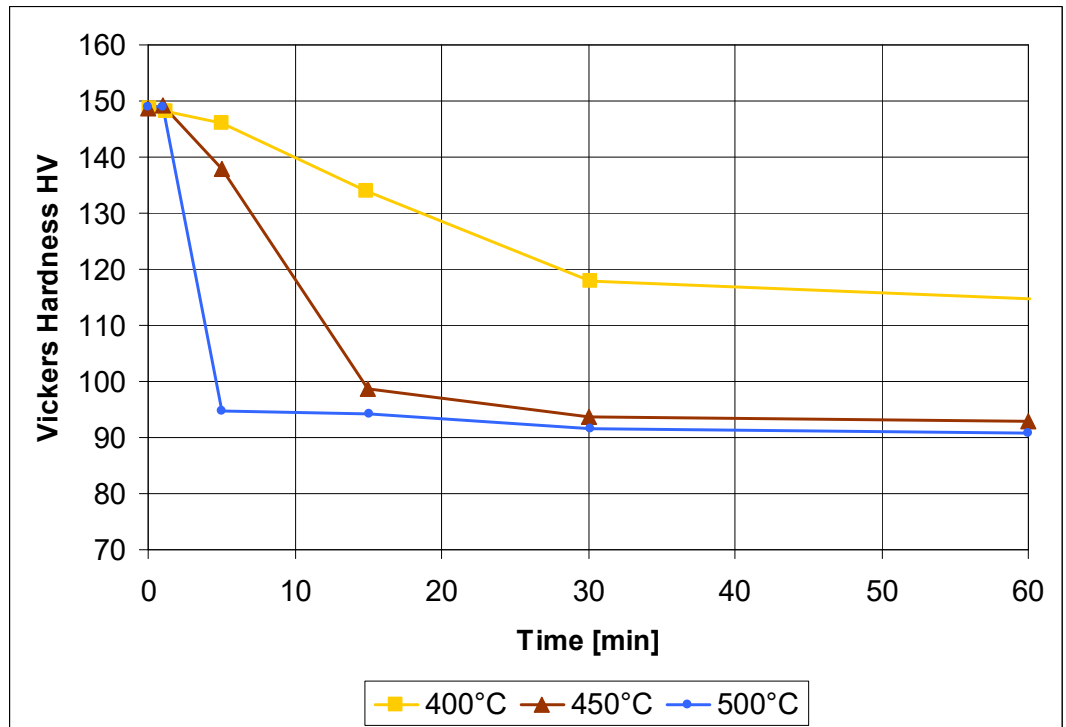
Other tempers are available upon request.
 GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction

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Fabrication properties

Soldering	excellent
Brazing	excellent
Gas shielded arc welding	excellent
Oxyacetylene welding	good
Cold formability	good
Hot formability	excellent

Softening resistance



Vickers hardness after heat treatment. (Temper H10, typical values)

Stress relaxation resistance

Typical temperature for $\geq 70\%$ remaining stress after 3000 h 105 °C

Typical uses

Automotive, Electrical engineering, Connectors, Contact springs, Semiconductor basis

Applicable specifications

ASTM B465, B888

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