

MECHANICAL AND PHYSICAL PROPERTIES OF Alloy C19720

ALLOY
DATA

Olin C19720 is a dispersion strengthened, high conductivity copper alloy with mechanical and physical properties identical to Olin C197. C19720 was developed by modifying the chemistry of C197 in order to produce an alloy with improved reliability at elevated temperatures. C197 performs well up to 115°C, however, C19720 will maintain at least 70% of its initial stress after exposure to 125°C for 3000 hours and push 150°C for 1000 hours. C19720 is a fit for active contact applications in automotive power distribution where high current-carrying capability and good strength under hood is required. For more information contact Olin Brass at 618-258-5255, OlinBrass.com or email us at info@olinbrass.com.

Table 1
Composition Limits of C19720

Copper¹	Remainder
Iron	0.05-0.50%
Magnesium	0.06-0.20%
Phosphorus	0.05-0.15%
Tin	0.20% Max
Zinc	0.20% Max
Nickel	0.10% Max
Lead	0.05% Max
Manganese	0.05% Max

1. Copper plus Named Elements, 99.5%

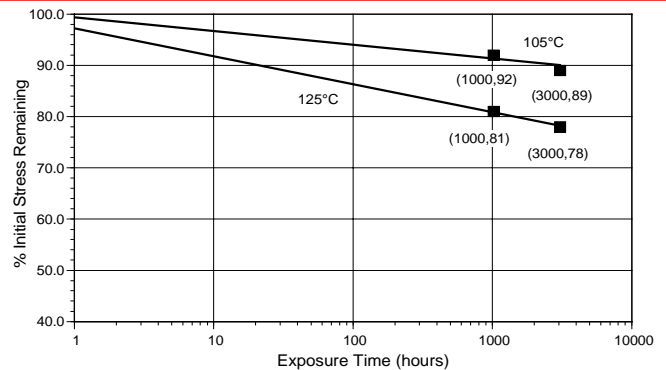


Figure 1: C19720 Stress Relaxation performance.

Table 2
Physical Properties of C19720

	English Units	Metric Units
Density	0.319 lb/in ³ @ 68°F	8.84 gm/cm ³ @ 20°C
Thermal Conductivity	185 Btu-ft/ft ² -hr-°F @ 68°F	0.77 cal-cm/cm ² -sec-°C @ 20°C
Electrical Resistivity	13 ohm circ mils/ft @ 68°F	2.16 microhm-cm @ 20°C
Electrical Conductivity (Annealed)	80% IACS † @ 68°F	0.464 Megmho/cm @ 20°C
Modulus of Elasticity	17,200,000 psi	118 kN/mm ²
Coefficient of Thermal Expansion 68-572°F (20-300° C)	9.6 PPM/°F	17.6 PPM/°C

† International Anneal Copper Standard

Table 3
Mechanical Properties of C19720

Temper	Tensile Strength		Nominal Yield Strength (0.2% Offset)		Nominal % Elong. in 2 Inch (51mm)	90° Bend Formability GW/BW ³
	ksi	N/mm ²	ksi	N/mm ²		
1/2 Hard	53 – 63	365 – 435	48	330	17	0.5/0.5
Hard	60 – 70	415 – 480	60	415	7	0.8/0.8
Extra Hard	67 – 73	460 – 505	67	460	6	1.2/1.2

3. MBR/T = Minimum Bend Radius/Material Thickness @ <0.020" thick 11/16 inch wide.

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