ALLOY DATA

C12200
ASTM B152

wieland

C122 is a copper that has been deoxidized with phosphorus and is excellent for deep drawing and other applications that require severe forming. It has the added advantage of being free from risk of hydrogen embrittlement when heated for brazing, welding, soldering or annealing in atmospheres containing hydrogen. Primarily used in pipes caps, brazed heat exchangers other applications that require high termperature joining or severe forming, C122 is also used in many electrical applications.

Chemical Composition

Copper[1]	**99.9% Min**
Phosphorus	**0.015-0.040%**

[1] Copper values includes Ag.

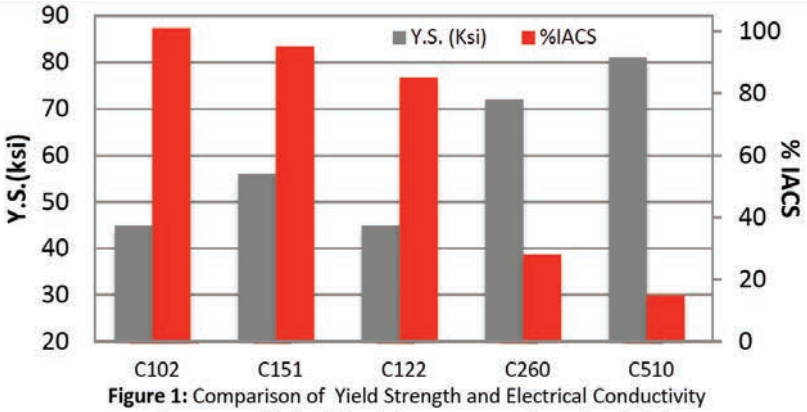

Figure 1: Comparison of Yield Strength and Electrical Conductivity performance of select Hard temper copper based materials.

Physical Properties

	English Units	Metric Units
Density	0.323 lb/in^3 @ 68ºF	8.94 g/cm^3
Thermal Conductivity	196 BTU-ft/ft^2-hr-ºF	339 W/mK
Electrical Resistivity	12.2 ohm circ mils/ft	2.03 microhm-cm
Electrical Conductivity (annealed)	85 % IACS*	0.493 megamho/cm
Modulus of Elasticity	17,000,000 psi	117 kN/mm^2
Coeff. Of Thermal Expansion		
68-572ºF (20-300ºC)	9.8 PPM/ºF	17.64 PPM/ºC

*International Annealed Copper Standard

Mechanical Properties

Temper[1]	Tensile Strength		Yield Strength		% Elongation[2]	Typical 90º Bend Formability GW/BW[3]	
	ksi	N/mm^2	ksi	N/mm^2			
Annealed (Soft)[4]	26-38	180-260	10	70	35	-	-
1/4 Hard	34-42	235-290	32	220	23	-	-
1/2 Hard	37-46	255-315	37	255	20	0.3	0.5
3/4 Hard	41-50	285-345	43	295	14	0.5	1.0
Hard	43-52	295-360	45	310	9	1.0	1.3
Extra Hard	47-56	325-385	50	345	4	1.5	1.8
Spring	50-58	345-400	52	360	3	2.0	2.5
Extra Spring	52 min	360 min	51 min	350 min	3 max		

[1] Mechanical properties subject to change. All rolled- tempers are accepted or rejected based on Tensile Strength.

[2] Nominal Values in 2" (51mm) [3] DATA FOR REFERENCE ONLY. R/T = Bend Radius/Material Thickness <0.016" (0.4mm) thick, 11/16 (17.5mm) wide.

[4] Annealed temper are manufactured to a grain size only, consult mill for additional info.