ALLOY DATA

C71000
ASTM B122

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Cupro-Nickels are among the most attractive, durable and versatile copper alloys available. Offering unique properties such as excellent resistance to biological fouling, corrosion and stress corrosion cracking, these alloys are used in a range of applications from heat exchangers, ship components and condenser tubes of power plants to coinage and even touch surface on medical equipment. Nickel additions in these alloys allow designers to benefit from attractive color options ranging from lite rose to silver.

Chemical Composition

Copper[1]	**Remainder**
Nickel[2]	**19.0 - 23.0%**
Iron	**1.0% MAX**
Manganese	**1.0% MAX**
Zinc	**1.0% MAX**
Lead	0.05% MAX

[1] Cu includes Ag; Copper plus named elements, 99.5%

[2] Ni Values Include Co

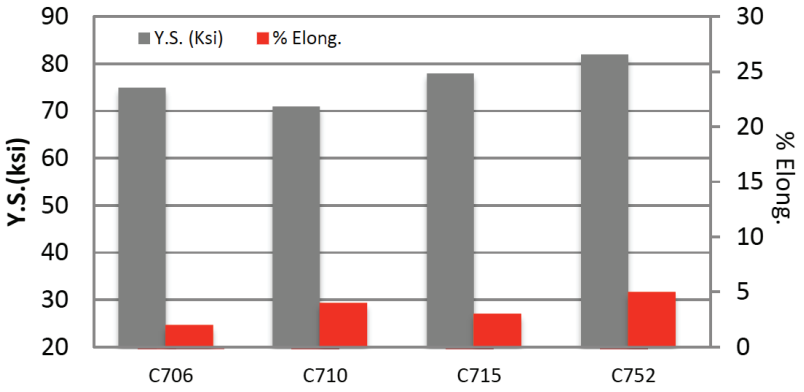

Figure 1: Comparison of Yield Strength and Elongation performance of select Hard temper Cupro-Nickel materials.

Physical Properties

	English Units	Metric Units
Density	0.323 lb/in^3 @ 68ºF	8.94 g/cm^3
Thermal Conductivity	21 BTU-ft/ft^2-hr-ºF	36 W/mK
Electrical Resistivity	160 ohm circ mils/ft	26.6 microhm-cm
Electrical Conductivity (annealed)	6.5% IACS	.038 megamho/cm
Modulus of Elasticity	20,000,000 psi	138 kN/mm^2
Coeff. Of Thermal Expansion 68-572ºF (20-300ºC)	9.1 PPM/ºF	16.4 PPM/ºC

Mechanical Properties

Temper[1]	Tensile Strength		Yield Strength[2]		% Elongation[3]	Typical 90º Bend Formability GW/BW[4]	
	ksi	N/mm^2	ksi	N/mm^2			
Soft(Annealed)	43-53	295-365	21	145	40		
1/4 Hard	47-63	325-435	40	275	15		
1/2 Hard	56-70	385-485	57	395	5		
Hard	67-79	460-545	70	485	2		
Extra Hard	72-84	495-580	75	515	1 min		
Spring	78-87	540-600	79	545	2 max		

[1] Mechanical properties subject to change. All tempers listed are made to a Tensile Strength specification unless otherwise noted. [2] Nominal Values

[3] Nominal Values in 2" (51mm) [4] DATA FOR REFERENCE ONLY. R/T = Bend Radius/Material Thickness <0.016" (0.4mm) thick, 11/16 (17.5mm) wide.