

Alloy C151 was developed by Olin Brass for specific applications demanding high electrical conductivity and excellent resistance to stress relaxation at elevated temperatures. As a precipitation hardened alloy these properties are combined with good strength and bend formability to make Alloy C151 a material that meets the demands of a wide variety of applications including electronic devices, power switching systems and automotive hybrid electrical systems.

Chemical Composition

Copper¹	Remainder
Zirconium	0.05 - 0.15%

¹ Copper plus named elements, 99.9% min

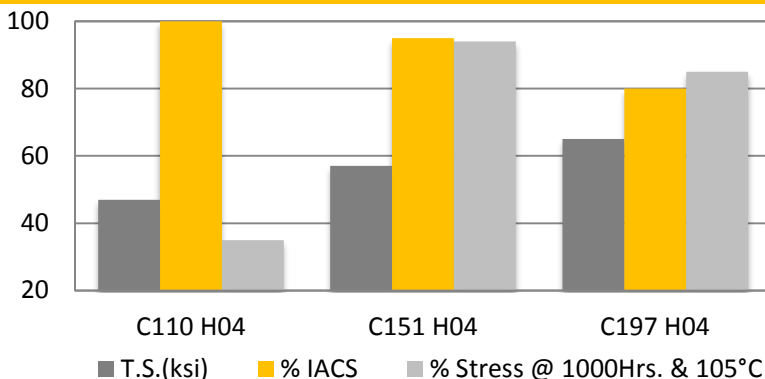


Figure 1: Comparison of Tensile Strength, Electrical Conductivity and Stress Relaxation performance of select highly conductive materials.

Physical Properties

	English Units	Metric Units
Density	0.323 lb/in ³ @ 68°F	8.94 g/cm ³
Thermal Conductivity	208 BTU-ft/ft ² -hr-°F	371 W/m ² K
Electrical Resistivity	10.9 ohm circ mils/ft	1.81 microhm-cm
Electrical Conductivity (annealed)	95% IACS*	0.551 megamho/cm
Electrical Conductivity (rolled)	90% IACS*	0.522 megamho/cm
Modulus of Elasticity	17,500,000 psi	123 kN/mm ²
Coeff. Of Thermal Expansion	68-572°F (20-300°C)	9.7 PPM/°F
	68-392°F (20-200°C)	9.4 PPM/°F
	68-212°F (20-100°C)	9.1 PPM/°F

*International Annealed Copper Standard

Mechanical Properties

Temper ¹	Tensile Strength		Yield Strength ²		% Elongation ²	Typical 90° Bend Formability GW/BW ³	
	ksi	N/mm ²	ksi	N/mm ²			
Annealed	37-42	255-290	13	90	38	-	-
1/4 Hard	40-45	275-310	35	240	22	0.5	0.5
1/2 Hard	43-51	295-350	42	290	10	0.8	0.8
3/4 Hard	47-56	325-385	50	345	5	1.3	1.3
Hard	53-62	365-425	56	385	3	1.5	1.5
Extra Hard	59-65	405-450	60	415	2	2.0	2.0
Spring Hard	64-71	440-490	66	455	1	2.5	2.5

¹ Mechanical properties subject to change. All tempers listed are made to a Tensile Strength specification unless otherwise noted.

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

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