

Physical & Mechanical Properties

		CUPROTHAL® 49	CUPROTHAL 30	CUPROTHAL 15	CUPROTHAL 10	CUPROTHAL 05
Nominal composition, %	Ni	44	21	11	6	2
	Cu	balance	balance	balance	balance	balance
	Fe	+	-	-	-	-
	Mn	1	1.5	-	-	-
Density ρ	g/cm ³ (lb/in ³)	8.90 (0.321)	8.90 (0.321)	8.90 (0.321)	8.90 (0.321)	8.90 (0.321)
Resistivity at 20°C at 68°F	Ω mm ² /m (Ω /cmf)	0.49 (295)	0.30 (180)	0.15 (90)	0.10 (60)	0.05 (30)
Temperature factor of the resistivity, C_t		$\pm 20/\pm 60$				
-55 – 150°C (-67 – 300°F) 20 – 105°C (68 – 220°F)						
Temperature range	°C (°F)	-55 – 150 (-67 – 300)	20 – 105 (68 – 220)	20 – 105 (68 – 220)	20 – 105 (68 – 220)	20 – 105 (68 – 220)
Linear thermal expansion coefficient α, $\times 10^{-4}/K$ 20 – 100°C (68 – 210°F)		14	16	16	16	16.5
Thermal conductivity λ at 50°C at 122°F	W/mK (Btu in/ft ² h°F)	21 (146)	35 (243)	60 (460)	90 (624)	130 (901)
Specific heat capacity at 20°C at 68°F	kJ/kgK (Btu/lb°F)	0.41 (0.098)	0.37 (0.088)	0.38 (0.091)	0.38 (0.091)	0.38 (0.091)
Melting point (approx.)	°C (°F)	1280 (2336)	1150 (2102)	1100 (2012)	1095 (2003)	1090 (1994)
Mechanical properties* (approx.)						
Tensile strength, min	N/mm ² (psi)	420 (60900)	340 (49300)	250 (36200)	230 (33350)	220 (31900)
Tensile strength, max	N/mm ² (psi)	690 (100100)	690 (100100)	540 (78300)	680 (98600)	440 (63800)
Elongation at rupture	%	30	30	30	30	30
Magnetic properties		non-magnetic non-magnetic non-magnetic non-magnetic non-magnetic				