

PHYSICAL AND 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	8.90	8.90	8.90	8.90	8.90
	(lb/in ³)	(0.321)	(0.321)	(0.321)	(0.321)	(0.321)
Resistivity at 20°C at 68°F	Ω mm ² /m	0.49	0.30	0.15	0.10	0.05
	(Ω/cm ²)	(295)	(180)	(90)	(60)	(30)
Temperature factor of the resistivity, C_t						
-55 – 150°C (-67 – 300°F)		±20/±60				
20 – 105°C (68 – 220°F)			250	400	700	1300
Temperature range	°C	-55 – 150	20 – 105	20 – 105	20 – 105	20 – 105
	(°F)	(-67 – 300)	(68 – 220)	(68 – 220)	(68 – 220)	(68 – 220)
Linear thermal expansion coefficient α, × 10⁻⁶/K						
20 – 100°C (68 – 210°F)		14	16	16	16	16.5
Thermal conductivity λ at 50°C at 122°F	W/mK	21	35	60	90	130
	(Btu in/ft ² h°F)	(146)	(243)	(460)	(624)	(901)
Specific heat capacity at 20°C at 68°F	kJ/kg K	0.41	0.37	0.38	0.38	0.38
	(Btu/lb°F)	(0.098)	(0.088)	(0.091)	(0.091)	(0.091)
Melting point (approx.)	°C	1280	1150	1100	1095	1090
	(°F)	(2336)	(2102)	(2012)	(2003)	(1994)
Mechanical properties* (approx.)						
Tensile strength, min	N/mm ²	420	340	250	230	220
	(psi)	(60900)	(49300)	(36200)	(33350)	(31900)
Tensile strength, max	N/mm ²	690	690	540	680	440
	(psi)	(100100)	(100100)	(78300)	(98600)	(63800)
Elongation at rupture	%	30	30	30	30	30
Magnetic properties		non-magnetic non-magnetic non-magnetic non-magnetic non-magnetic				