

## CLAL-MSX NICLAFOR® 1000 TD4 Quenched/Cold Rolled, Rolled Copper Alloy

Category : Metal , Nonferrous Metal , Copper Alloy

### Material Notes:

Finished parts can be produced with: reduction in sections, high mechanical properties even at high temperature, high spring properties, high conductivity, good resistance to corrosion, low permeability, good formability, long life duration. Meets environmental concern by not containing Beryllium, Cadmium nor Titanium. Applications: Electrotechnic, Electromechanic, Electronic, Connectic, Automotive, Domestic appliances, Spectacle industry, Turned parts. Information provided by CLAL-MSX

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_CLAL-MSX-NICLAFOR-1000-TD4-QuenchedCold-Rolled-Rolled-Copper-Alloy.php](http://www.lookpolymers.com/polymer_CLAL-MSX-NICLAFOR-1000-TD4-QuenchedCold-Rolled-Rolled-Copper-Alloy.php)

Physical Properties	Metric	English	Comments
Density	8.90 g/cc	0.322 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Vickers	220 - 260	220 - 260	
Tensile Strength, Ultimate	700 - 820 MPa	102000 - 119000 psi	
Tensile Strength, Yield	>= 600 MPa @Strain 0.200 %	>= 87000 psi @Strain 0.200 %	
Elongation at Break	1.0 %	1.0 %	A<sub>50 mm</sub>
Modulus of Elasticity	120 GPa	17400 ksi	
Modulus of Rigidity	50.0 GPa	7250 ksi	Torsion
Flexural Strength	467 MPa	67700 psi	Rigidty. Elastic bending fatigue, Longitudinal
	568 MPa	82400 psi	Rigidty. Elastic bending fatigue, Transverse
Fatigue Strength	450 MPa @# of Cycles 1.00e+7	65300 psi @# of Cycles 1.00e+7	

Thermal Properties	Metric	English	Comments
CTE, linear	17.25 µm/m-°C @Temperature 20.0 - 200 °C	9.583 µin/in-°F @Temperature 68.0 - 392 °F	
Thermal Conductivity	53.6 W/m-K	372 BTU-in/hr-ft <sup>2</sup> -°F	
Melting Point	968 - 1078 °C	1770 - 1972 °F	

<b>Solidus</b> Thermal Properties	<b>968 °C</b> Metric	<b>1770 °F</b> English	Comments
Liquidus	1078 °C	1972 °F	

Component Elements Properties	Metric	English	Comments
Copper, Cu	82.65 - 85.95 %	82.65 - 85.95 %	
Iron, Fe	<= 0.50 %	<= 0.50 %	
Lead, Pb	<= 0.030 %	<= 0.030 %	
Manganese, Mn	0.050 - 0.30 %	0.050 - 0.30 %	
Nickel, Ni	8.5 - 9.5 %	8.5 - 9.5 %	
Phosphorous, P	<= 0.020 %	<= 0.020 %	
Tin, Sn	5.5 - 6.5 %	5.5 - 6.5 %	
Zinc, Zn	<= 0.50 %	<= 0.50 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	<= 0.00001433 ohm-cm	<= 0.00001433 ohm-cm	precipitation hardened (3h)
	<= 0.00001911 ohm-cm	<= 0.00001911 ohm-cm	quenched

Descriptive Properties	Value	Comments
Bending	1	90° bending across and in the rolling direction, transverse
	4	90° bending across and in the rolling direction, longitudinal

## Contact Songhan Plastic Technology Co.,Ltd.

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