

CLAL-MSX ARCAP Anticorrosion AP4 H12 1/2 hard, Rolled Copper Alloy

Category : Metal , Nonferrous Metal , Copper Alloy , Nickel Alloy

Material Notes:

Description: The AP4 grade is less easy to turn than the other grades of ARCAP. It can however be machined without more difficulty than the nickel chromium molybdenum steels. **High Corrosion Resistance:** ARCAP alloys are very corrosion resistant to the majority of chemical and physical environments. CLAL can provide data for the corrosion resistance of ARCAP alloys. In particular ARCAP alloys have a very high resistance to scaling and clogging of pipes by hard water and the blocking of pipes used for transport powder products such as sodium aluminate, cement, etc. **High Mechanical Properties:** In annealed temper ARCAP, alloys have an elongation up to 45 %, which allows deep drawing. In spring temper the ultimate tensile strength is above 800 MPa. **Non-Magnetic:** A detector sensitive to 1/10 of nanotesla, placed at less than 1 mm from ARCAP alloys will not show any magnetic interference. This non magnetism is kept even at very low temperatures (measured at 4.2° k). **Stable Resistivity:** Temperature variations have almost no effect on the resistivity of ARCAP alloys. The temperature coefficient of the grade AP4 is $4 \times 10^{-5}/^{\circ}\text{C}$ and $25 \times 10^{-5}/^{\circ}\text{C}$ for the other grades. **Excellent Behaviour At Low Temperature:** At low temperatures the mechanical properties of ARCAP alloys are improved. A cryogenic application shows that the ultimate tensile strength and the yield strength increase without any diminution of the elongation or the impact strength. **Very Easy To Process:** ARCAP alloys are easily processed whether by forging, stamping, deep drawing, machining, welding or brazing. They are also easily plated. Information provided by CLAL-MSX

Order this product through the following link:

http://www.lookpolymers.com/polymer_CLAL-MSX-ARCAP-Anticorrosion-AP4-H12-12-hard-Rolled-Copper-Alloy.php

Physical Properties	Metric	English	Comments
Density	8.91 g/cc	0.322 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Vickers	175 - 205	175 - 205	
Tensile Strength, Ultimate	550 - 650 MPa	79800 - 94300 psi	
Tensile Strength, Yield	>= 450 MPa @Strain 0.200 %	>= 65300 psi @Strain 0.200 %	
Elongation at Break	>= 8.0 %	>= 8.0 %	L ₀ ≥ 50 mm
Modulus of Elasticity	145 GPa	21000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	16.0 µm/m-°C @Temperature 0.000 - 300 °C	8.89 µin/in-°F @Temperature 32.0 - 572 °F	
	17.0 µm/m-°C @Temperature 0.000 -	9.44 µin/in-°F @Temperature 32.0 -	

Thermal Properties	600 °C Metric	1110 °F English	Comments
Thermal Conductivity	22.5 W/m-K	156 BTU-in/hr-ft ² -°F	
	@Temperature <=20.0 °C	@Temperature <=68.0 °F	
	23.0 W/m-K	160 BTU-in/hr-ft ² -°F	
	@Temperature <=200 °C	@Temperature <=392 °F	
Melting Point	1225 - 1285 °C	2237 - 2345 °F	
Solidus	1225 °C	2237 °F	
Liquidus	1285 °C	2345 °F	

Optical Properties	Metric	English	Comments
Reflection Coefficient, Visible (0-1)	0.700	0.700	Relative to Silver = 1

Component Elements Properties	Metric	English	Comments
Copper, Cu	53.5 %	53.5 %	
Nickel, Ni	45 %	45 %	
Other	2.0 %	2.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000490 ohm-cm	0.0000490 ohm-cm	

Descriptive Properties	Value	Comments
Color	White	
Non Magnetism request	1E-05	OERSTED
Temperature Coefficient	4E-05	K-1

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