

CLAL-MSX ARCAP Anticorrosion AP4 H12 1/2 hard, Drawn 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-Drawn-Copper-Alloy.php

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

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	550 - 600 MPa	79800 - 87000 psi	Rod
	650 - 750 MPa	94300 - 109000 psi	Wire
Elongation at Break	>= 5.0 %	>= 5.0 %	L₀>=50 mm
Modulus of Elasticity	145 GPa	21000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	16.0 $\mu\text{m}/\text{m}^{\circ}\text{C}$	8.89 $\mu\text{in}/\text{in}^{\circ}\text{F}$	
	@Temperature 0.000 - 300 °C	@Temperature 32.0 - 572 °F	
	17.0 $\mu\text{m}/\text{m}^{\circ}\text{C}$	9.44 $\mu\text{in}/\text{in}^{\circ}\text{F}$	
	@Temperature 0.000 - 600 °C	@Temperature 32.0 - 1110 °F	
Thermal Conductivity	22.5 W/m-K	156 BTU-in/hr-ft ² -°F	

Thermal Properties	@Temperature <=20.0 Metric	@Temperature <=68.0 English	Comments
	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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