

## CLAL-MSX ARCAP Anticorrosion AP1 H12 1/2 hard, Rolled Copper Alloy

Category : Metal , Nonferrous Metal , Copper Alloy

### Material Notes:

**Description:** The AP1D grade has been developed especially for being machined by lathe. The very good machineability of the AP1D grade may be summarised by: cutting speed up to 150 m/minute (according to the type of part, cutting tool and lathe), very good quality of surface that can be lapped or polished with a diamond tool, burr free after drilling, and reduction in frequency of tool sharpening. **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-AP1-H12-12-hard-Rolled-Copper-Alloy.php](http://www.lookpolymers.com/polymer_CLAL-MSX-ARCAP-Anticorrosion-AP1-H12-12-hard-Rolled-Copper-Alloy.php)

Physical Properties	Metric	English	Comments
Density	8.80 g/cc	0.318 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Vickers	150 - 170	150 - 170	
Tensile Strength, Ultimate	450 - 550 MPa	65300 - 79800 psi	
Tensile Strength, Yield	>= 370 MPa @Strain 0.200 %	>= 53700 psi @Strain 0.200 %	
Elongation at Break	>= 10 %	>= 10 %	L <sub>0</sub> ≥ 50 mm
Modulus of Elasticity	163 - 170 GPa	23600 - 24700 ksi	

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

Thermal Properties	Metric	English	Comments
	@Temperature 0.000 - 600 °C	@Temperature 32.0 - 1110 °F	
Thermal Conductivity	22.0 W/m-K	153 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature <=20.0 °C	@Temperature <=68.0 °F	
	25.0 W/m-K	174 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature <=200 °C	@Temperature <=392 °F	
Melting Point	1150 - 1170 °C	2100 - 2140 °F	
Solidus	1150 °C	2100 °F	
Liquidus	1170 °C	2140 °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	65 %	65 %	
Nickel, Ni	25 %	25 %	
Other	2.0 %	2.0 %	
Zinc, Zn	8.0 %	8.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000351 - 0.0000400 ohm-cm	0.0000351 - 0.0000400 ohm-cm	

Descriptive Properties	Value	Comments
Color	Whiteish bluish	
Non Magnetism request	1E-05	OERSTED
Temperature Coefficient	0.00025	K-1

## Contact Songhan Plastic Technology Co.,Ltd.

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