

CMW® ELKONIUM 1 silver, copper, nickel alloy

Category : Metal , Nonferrous Metal , Precious Metal , Silver Alloy

Material Notes:

Alloying copper into silver increases the hardness of the material, and its resistance to mechanical wear and deformation. The electrical and thermal conductivity remain relatively high, thus, the alloys retain good current switching characteristics. Corrosion resistance decreases as the copper content increases. Copper oxides and other films will increase the surface resistance of these materials. This will require higher closing forces, usually 2 ounces or more, and some wiping action to break through the films and establish good contact. Because of the oxidation tendency, the silver-copper alloys should be avoided in high temperature applications. The silver-copper alloy materials are ductile and can be made in almost all the same shape and size contacts as fine silver. Usually, they will show an economical advantage over fine silver. COIL SILVER AND ELKONIUM® 1 alloys are the most widely used materials of this group for electrical contacts. ELKONIUM® 1 material sold by CMW displays low transfer tendencies and high current switching capability in a number of automotive applications. Coin silver also has been used in a number of relays and switches because it is more economical than fine silver. It has been used in rotary switches and other sliding contact applications because it has good resistance to mechanical wear. Both coil silver and ELKONIUM 1 materials are used in high contact force applications where fine silver has failed by mechanical wear or deformation due to its lower hardness. Information provided by CMW Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_CMW-ELKONIUM-1-silver-copper-nickel-alloy.php

Physical Properties	Metric	English	Comments
Density	10.0 g/cc	0.361 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell 15T	78	78	annealed
	85	85	cold worked
Tensile Strength, Ultimate	310 MPa	45000 psi	annealed
	552 MPa	80000 psi	cold worked
Elongation at Break	4.0 %	4.0 %	cold worked
	32 %	32 %	annealed

Component Elements Properties	Metric	English	Comments
Copper, Cu	24.5 %	24.5 %	
Nickel, Ni	0.50 %	0.50 %	
Silver, Ag	75 %	75 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000230 ohm-cm	0.00000230 ohm-cm	75 % IACS

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