

ATI Allegheny Ludlum AL 42™ Electrical Alloy, UNS K94100

Category : Metal , Electronic/Magnetic Alloy , Ferrous Metal

Material Notes:

AL 42 alloy is used extensively in the manufacture of sealed beam automobile head lamps, in grommet and pin type glass-metal seals, and in integrated circuit lead frames. It is also the core metal used in the manufacture of Dumet wire. AL 42 alloy has a low expansion coefficient used to match the expansion characteristics of 98% alumina and hard borosilicate glasses. In its various annealed or tempered conditions AL 42 alloy has excellent formability, good stampability, good photoetching characteristics and is solderable. The alloy is fully austenitic at all application temperatures. Where glass-metal sealing is involved, the alloy is usually stabilized with titanium additions to prevent evolution of carbon dioxide bubbles in the glass-metal interface. A titanium stabilized version is available for glass-to-metal seal applications where formation of carbon dioxide bubbles is to be avoided during fabrication. Information provided by Allegheny Ludlum

Order this product through the following link:

http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-AL-42-Electrical-Alloy-UNS-K94100.php

Physical Properties	Metric	English	Comments
Density	8.15 g/cc	0.294 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	55	55	Typical Annealed
Tensile Strength, Ultimate	482 MPa	69900 psi	Typical Annealed
Tensile Strength, Yield	275 MPa @Strain 0.200 %	39900 psi @Strain 0.200 %	Typical; Annealed
Elongation at Break	28 %	28 %	typical in 2"; Annealed

Thermal Properties	Metric	English	Comments
CTE, linear	4.00 - 4.70 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 30.0 - 300 °C	2.22 - 2.61 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 86.0 - 572 °F	
	6.70 - 7.40 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 30.0 - 500 °C	3.72 - 4.11 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 86.0 - 932 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.0010 %	0.0010 %	
Carbon, C	0.010 %	0.010 %	
Chromium, Cr	0.15 %	0.15 %	

Component Elements Properties	Metric	English	Comments
Iron, Fe	58.4 %	58.4 %	as balance
Manganese, Mn	0.50 %	0.50 %	
Nickel, Ni	40.75 %	40.75 %	
Phosphorous, P	0.010 %	0.010 %	
Silicon, Si	0.20 %	0.20 %	
Sulfur, S	0.0070 %	0.0070 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000660 ohm-cm	0.0000660 ohm-cm	

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