

Ceramic Process Systems AlSiC-9, 63 vol% SiC

Category : Metal , Metal Matrix Composite

Material Notes:

Aluminum alloy A356.2 used. Hermeticity < 1x10⁹ atm-cc/s He.CPS fabricates AlSiC by preparing an SiC preform which is subsequently infiltrated by molten aluminum metal. After infiltration, components can be plated using conventional plating schemes to allow for assembly and integration operations. The CPS fabrication process provides a material that has a unique combination of physical properties: a compatible CTE, high thermal conductivity, light weight, and tight dimensional tolerance without machining (i.e. net-shape).Information provided by Ceramic Process Systems.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Ceramic-Process-Systems-AlSiC-9-63-vol-SiC.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|--------------------------|----------|
| Density | 3.01 g/cc | 0.109 lb/in ³ | |

| Mechanical Properties | Metric | English | Comments |
|------------------------|---------------------------|----------------------------|----------------------------------|
| Modulus of Elasticity | 192 GPa | 27800 ksi | Young's Modulus |
| Flexural Strength | 550 MPa | 79800 psi | Bend strength (B-bar, 4 pt bend) |
| Bearing Yield Strength | 430 MPa | 62400 psi | B-bar, 4 pt bend |
| Poissons Ratio | 0.242 | 0.242 | |
| Fracture Toughness | 11.3 MPa-m ^{1/2} | 10.3 ksi-in ^{1/2} | |
| Shear Modulus | 77.0 GPa | 11200 ksi | |

| Thermal Properties | Metric | English | Comments |
|------------------------|----------------------|---------------------------------------|----------|
| CTE, linear | 7.50 μm/m-°C | 4.17 μin/in-°F | |
| | @Temperature 30.0 °C | @Temperature 86.0 °F | |
| | 9.20 μm/m-°C | 5.11 μin/in-°F | |
| | @Temperature 200 °C | @Temperature 392 °F | |
| Specific Heat Capacity | 0.741 J/g-°C | 0.177 BTU/lb-°F | |
| Thermal Conductivity | >= 160 W/m-K | >= 1110 BTU-in/hr-ft ² -°F | Minimum |
| | 180 W/m-K | 1250 BTU-in/hr-ft ² -°F | Typical |

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