

Carpenter Kovar® Alloy (Glass and Ceramic Sealing Alloy)

Category : Metal , Electronic/Magnetic Alloy , Ferrous Metal , Superalloy

Material Notes:

Data provided by Carpenter Technology Corporation. Kovar® alloy is a vacuum melted, Fe-Ni-Co, low expansion alloy whose chemical composition is controlled within narrow limits to assure precise uniform thermal expansion properties. Kovar alloy has been used for making hermetic seals with the harder Pyrex glasses and ceramic materials. This alloy has found wide application in power tubes, microwave tubes, transistors, and diodes. In integrated circuits, it has been used for the flat pack and the dual-in-line package. Kovar® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Carpenter-Kovar-Alloy-Glass-and-Ceramic-Sealing-Alloy.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|--------------------------|----------|
| Density | 8.36 g/cc | 0.302 lb/in ³ | |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|----------|-----------|------------|
| Hardness, Brinell | 120 | 120 | |
| Hardness, Rockwell B | 68 | 68 | |
| Tensile Strength, Ultimate | 517 MPa | 75000 psi | |
| Tensile Strength, Yield | 345 MPa | 50000 psi | |
| Elongation at Break | 30 % | 30 % | in 50.8 mm |
| Modulus of Elasticity | 138 GPa | 20000 ksi | |
| Poissons Ratio | 0.317 | 0.317 | |
| Shear Modulus | 51.7 GPa | 7500 ksi | |

| Thermal Properties | Metric | English | Comments |
|--------------------|----------------------------|----------------------------|----------|
| CTE, linear | 4.90 µm/m-°C | 2.72 µin/in-°F | |
| | @Temperature 30.0 - 400 °C | @Temperature 86.0 - 752 °F | |
| | 5.13 µm/m-°C | 2.85 µin/in-°F | |
| | @Temperature 25.0 - 300 °C | @Temperature 77.0 - 572 °F | |
| | 5.30 µm/m-°C | 2.94 µin/in-°F | |
| | @Temperature 30.0 - 450 °C | @Temperature 86.0 - 842 °F | |
| | 5.86 µm/m-°C | 3.26 µin/in-°F | |

| Thermal Properties | Metric | English | Comments |
|------------------------|-----------------------------|-----------------------------------|---------------|
| | @ Temperature 25.0 - 100 °C | @ Temperature 77.0 - 212 °F | |
| | 6.15 µm/m-°C | 3.42 µin/in-°F | |
| | @ Temperature 25.0 - 500 °C | @ Temperature 77.0 - 932 °F | |
| | 11.26 µm/m-°C | 6.256 µin/in-°F | |
| | @ Temperature 25.0 - 900 °C | @ Temperature 77.0 - 1650 °F | |
| Specific Heat Capacity | 0.439 J/g-°C | 0.105 BTU/lb-°F | |
| | @ Temperature 0.000 °C | @ Temperature 32.0 °F | |
| | 0.649 J/g-°C | 0.155 BTU/lb-°F | |
| | @ Temperature 430 °C | @ Temperature 806 °F | |
| Thermal Conductivity | 17.3 W/m-K | 120 BTU-in/hr-ft ² -°F | |
| Melting Point | 1450 °C | 2640 °F | |
| Solidus | 1450 °C | 2640 °F | Melting Point |
| Liquidus | 1450 °C | 2640 °F | Melting Point |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|------------|------------|--------------|
| Carbon, C | <= 0.020 % | <= 0.020 % | |
| Cobalt, Co | 17 % | 17 % | |
| Iron, Fe | 53 % | 53 % | as remainder |
| Manganese, Mn | 0.30 % | 0.30 % | |
| Nickel, Ni | 29 % | 29 % | |
| Silicon, Si | 0.20 % | 0.20 % | |

| Electrical Properties | Metric | English | Comments |
|------------------------|------------------|------------------|----------|
| Electrical Resistivity | 0.0000490 ohm-cm | 0.0000490 ohm-cm | |
| Curie Temperature | 435 °C | 815 °F | |

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215, Fengxian District, Shanghai City, China