

Aremco AREMCOLOX™ 502-800 Macor® Machinable Glass Ceramic, MGC

Category : Ceramic , Glass , Glass Ceramic , Machinable Ceramic

Material Notes:

Recommended for temperatures to 1472°F (800°C) and peaks up to 1832°F (1000°C). Demonstrates low thermal conductivity, high strength, high electrical insulation, zero porosity, non-wetting, and coefficient of thermal expansion similar to most metals and sealing glasses.

Machines to tight tolerances up to 0.0005", surface finish of less than 20µin, and polishes to a smoothness of 0.5µin. Used for ultra high vacuum, aerospace, nuclear, welding, fixturing, and medical applications. Readily machined and no firing required. Bars, disks, rods and plates are available fro 1/16" thick up to 12" diameter.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Aremco-AREMCOLOX-502-800-Macor-Machinable-Glass-Ceramic-MGC.php

Physical Properties	Metric	English	Comments
Density	2.52 g/cc	0.0910 lb/in³	
Porosity	0.00 %	0.00 %	

Mechanical Properties	Metric	English	Comments
Hardness, Knoop	250	250	100g
Hardness, Rockwell A	48	48	
Modulus of Elasticity	66.9 GPa	9700 ksi	
Modulus of Rupture	0.0940 GPa	13.6 ksi	
Compressive Strength	345 MPa	50000 psi	
Poissons Ratio	0.29	0.29	
Fracture Toughness	1.53 MPa-m½	1.39 ksi-in½	
Shear Modulus	25.5 GPa	3700 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	7.40 µm/m-°C	4.11 µin/in-°F	
	@Temperature -200 - 25.0 °C	@Temperature -328 - 77.0 °F	
	9.30 µm/m-°C	5.17 µin/in-°F	
	@Temperature 25.0 - 300 °C	@Temperature 77.0 - 572 °F	
	11.4 µm/m-°C	6.33 µin/in-°F	
	@Temperature 25.0 -	@Temperature 77.0 -	

Thermal Properties	600 °C Metric	1110 °F English	Comments
	12.6 µm/m-°C	7.00 µin/in-°F	
	@Temperature 25.0 - 800 °C	@Temperature 77.0 - 1470 °F	
Specific Heat Capacity	0.790 J/g-°C	0.189 BTU/lb-°F	
Thermal Conductivity	1.464 W/m-K	10.16 BTU-in/hr-ft²-°F	
Maximum Service Temperature, Air	800.0 °C	1472 °F	Continuous
	1000 °C	1832 °F	No Load

Component Elements Properties	Metric	English	Comments
Al2O3	16 %	16 %	
B2O3	7.0 %	7.0 %	
K2O	10 %	10 %	
MgO	17 %	17 %	
Other	4.0 %	4.0 %	
SiO2	46 %	46 %	

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+16 ohm-cm	>= 1.00e+16 ohm-cm	DC
	5.67	5.67	
Dielectric Constant	@Frequency 8.50e+9 Hz	@Frequency 8.50e+9 Hz	
	6.03	6.03	
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	39.4 kV/mm	1000 kV/in	
	@Thickness 2.54 mm	@Thickness 0.100 in	
Dissipation Factor	0.0047	0.0047	
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	0.0071	0.0071	
	@Frequency 8.50e+9 Hz	@Frequency 8.50e+9 Hz	

Descriptive Properties	Value	Comments
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Descriptive Properties	Value	Comments
		7.6; 1 day; 95°C
	0.06	Water; pH=7.6; 3 days (water freshened daily); 95°C
	0.07	Water; pH=7.6; 3 days; 95°C
	0.1	2% Sodium Carbonate; pH = 10.9; 6 hrs; 95°C
	0.11	Water; pH=7.6; 6 days (water freshened daily); 95°C
	0.3	10% Sodium Bicarbonate; pH = 8.4; 24 hrs; 95°C
	0.6	0.2% Nitric Acid; pH = 2.8; 24 hrs; 95°C
	10	5% Sodium Hydroxide; pH = 13.2; 6 hrs; 95°C
	100	5% Hydrochloric Acid; pH = 0.1; 24 hrs; 95°C
	9.4	Water; pH=7.6; 7 days; 95°C

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