

Astro Met Macor® Machinable Glass Ceramic

Category : Ceramic , Glass , Glass Ceramic , Machinable Ceramic

Material Notes:

General Description: Macor is a machinable glass-ceramic material with a unique combination of useful properties. A product of Corning Incorporated, it is stocked, distributed and fabricated by Astro Met, Inc. High dielectric strength makes Macor an excellent insulator. No out-gassing, essentially zero porosity and low helium permeation make it useful in vacuum applications. Because it is thermally stable and has thermal expansion characteristics similar to metals, it can be used where high heat and flame are problems. It can be sealed, metallized and brazed. Macor can be turned, milled, drilled, tapped, sawed and ground by ordinary metalworking tools and techniques. It is machined with high-speed steel or, more easily, with carbide tooling at relatively low speeds and feeds, but with greater depth of cut than is usual with metals. Use of a water-soluble coolant is recommended. The "chips" are a fine powder, easily controlled by coolant or vacuum. Because Macor is so readily machined, it is a cost effective material for small volume manufacturing and for developing ceramic prototypes which in production are made by pressing and sintering large quantities. It has been used for nozzles, sensor housings, bearings, fixtures, guides, electrical insulators, thermal isolators and numerous other applications where the unique technical properties of Macor provide a solution to a challenging materials problem.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Astro-Met-Macor-Machinable-Glass-Ceramic.php

Physical Properties	Metric	English	Comments
Density	2.52 g/cc	0.0910 lb/in ³	
Porosity	0.00 %	0.00 %	

Mechanical Properties	Metric	English	Comments
Hardness, Knoop	250	250	
Flexural Strength	103 MPa	15000 psi	
Compressive Strength	345 MPa	50000 psi	

Thermal Properties	Metric	English	Comments
CTE, linear	9.40 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	5.22 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 $^\circ\text{C}$	@Temperature 68.0 $^\circ\text{F}$	
Maximum Service Temperature, Air	1000 $^\circ\text{C}$	1830 $^\circ\text{F}$	no load

Electrical Properties	Metric	English	Comments
Volume Resistivity	$\geq 1.00\text{e}+16$ ohm-cm	$\geq 1.00\text{e}+16$ ohm-cm	
Dielectric Strength	39.4 kV/mm	1000 kV/in	

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