28 York Avenue
Randolph, MA 02368
(P) 781-961-9600
(F) 781-961-2845
www.eccosorb.com

ECCOSTOCK® CK

High Temperature, Lightweight, Low Loss, Adjusted Dielectric Constant Stock & Molded Parts

Product Characteristics

- ECCOSTOCK® CK (Constant K) is a series of low loss, lightweight stock and molded products with controlled dielectric constants ranging from 1.7 up to 15
- Fabrication of molded parts without incidence of shrinking or cracking
- Excellent machinability
- Typical loss tangent of <0.002 for the complete product range

Applications

- ECCOSTOCK® CK is ideal for aerospace applications where lower density, lightweight materials are preferred
- Excellent product for fabrication of complex parts and for filling cavities in metal hardware
- Choice material for microwave lenses due to low loss properties and ability to be molded into large volume spheres
- Can be used in cavity tuning probes, patch antennas and dielectric support or spacer functions.

Availability

- ECCOSTOCK® CK custom molded parts and standard stock material are available in a variety of dielectric constants ranging from 1.7 to 15
- Availability includes cavity molding into customer supplied hardware and as stand alone parts made to customer drawing specifications.
- Sheets: 12" x 12" (30.5cm x 30.5cm) in thicknesses of 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 1.0, 1.5, 2.0, 2.5 & 3.0" (0.32, 0.64, 0.95, 1.27, 1.59, 1.91, 2.54, 3.81, 5.08, 6.35 & 7.62 cm)
- Rods: 12" long (30.5cm) in diameters of 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 1.0, 1.5, 2.0, 2.5 & 3.0" (0.32, 0.64, 0.95, 1.27, 1.59, 1.91, 2.54, 3.81, 5.08, 6.35 & 7.62 cm)
- Bars: 12" long (30.5cm) in squares of 1/4, 3/8, 1/2, 5/8, 3/4, 1.0, 1.5 & 2.0" (0.64, 0.95, 1.27, 1.59, 1.91, 2.54, 3.81 & 5.08 cm)
- Other sizes, shapes, thicknesses, dielectrics, and configurations are available on special order

Related E&C Products (stock)

- ECCOSTOCK® HiK is a series of low loss plastic stock with adjusted dielectric constants up to 15
- ECCOSTOCK® HiK 500 is a series of high temperature, low loss plastic stock with adjusted dielectric constants up to 30

Machining Recommendations

- ECCOSTOCK® CK stock and molded parts can be easily machined using carbide tools or by grinding. However, diamond blades are recommended for high dielectrics

Typical Properties

Frequency	2-18 GHz	
Temperature Range	-56°C to 204°C	
Dielectric Constant	4.0	9.6
Dielectric Constant Accuracy	+/- 3%	+/- 3%
Dissipation Factor	<0.002	<0.002
Dielectric Strength (volts/mil)	176	141
Density (g/cm^3)	1.14	1.90
Volume Resistivity (ohm-cm)	4.8×10^{11}	4.8×10^{11}
Compression Strength (psi)	8,200	11,954
Compression Modulus (Mpsi)	0.1569	0.4019
Shear Strength (psi)	169	104
Shear Modulus (psi)	8,518	5,681
Flexural Modulus (psi)	538,000	1,049,000
Izod Impact (ft-lb/inch)	0.17	0.25
Coefficient of Thermal Expansion per °C	64×10^{-6}	115×10^{-6}
Thermal Conductivity @ room temp (W)/(m)(°C), (BTU)(IN)/(hr)(ft^2)(°F)	 0.22 1.50	 0.54 3.74
Thermal Conductivity @ 160 C (W)/(m)(°C), (BTU)(IN)/(hr)(ft^2)(°F)	 0.22 1.55	 0.49 3.40
Water Absorption % gain @ 25°C	0.5693	0.3157
% TML	0.121	0.280
% CVCM	0.011	0.055
% WVR	0.068	0.056