

## ECCOSTOCK® HiK

Low Loss, Adjusted Dielectric Constant Stock

### Material Characteristics

- ECCOSTOCK® HiK is a series of low loss plastic stock with adjusted dielectric constants up to 15 (see Related E&C Products below for higher dielectric constants)
- Does not support fungal growth per MIL-STD-810E
- Low out gassing properties for space applications
- Low water absorption

### Applications

- Since water absorption is low, ECCOSTOCK® HiK can be used in outdoor applications
- ECCOSTOCK® HiK is primarily used for reducing the overall size of a waveguide by increasing the dielectric constant. It is also used in cavity tuning probes, patch antennas, and dielectric support pieces

### Availability

- ECCOSTOCK® HiK is available in the following dielectric constants: 3, 3.5, 3.8, 4, 4.5, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 & 15 (see Related E&C Products below for higher dielectric constants up to 30)
- Sheets: 12" x 12" (30.5cm x 30.5cm) in thicknesses of 1/4, 3/8, 1/2, 5/8, 3/4, 1.0, 1.5, 2.0, 2.5 & 3.0" (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
- Upon special requests, custom shapes may be available with a Pressure Sensitive Adhesive (PSA)

### Related E&C Products

- ECCOSTOCK® HiK 500F - A similar material to our ECCOSTOCK® HiK, but with higher dielectric constants up to 30 and an increased service temperature capability
- ECCOSTOCK® HiK can be bonded to itself using ECCOSTOCK® HiK Cement with its corresponding dielectric constant

### Machining Recommendations

- ECCOSTOCK® HiK can be readily machined using carbide tools or by grinding. Diamond blades are not recommended due to gumming of the tools. Water solution cooling agents are also recommended

### Typical Properties

Appearance	White, opaque
Temperature Range, °F (°C)	-85 to 230 (-65 to 110)
Dielectric Constant Accuracy	± 3%
Specific Gravity	2.2
Dissipation Factor, 1 to 10 GHz	<0.002
Volume Resistivity, ohm-cm	>10 <sup>12</sup>
Dielectric Strength, volts/mil	>200
Flexural Strength, psi (kg/cm <sup>2</sup> )	6500 (457)
Izod Impact, ft-lb/inch of notch	0.25
Coefficient of Linear Expansion, °C	36 x 10 <sup>-6</sup>
%TML	0.38
%CVCM	0.001
Water Absorption, (weight)	<0.1%

Properties will vary to a degree with the dielectric constant. Typical values for the middle of the dielectric constant range are given above