

Low Loss, Adjusted Dielectric Constant Stock



LOW LOSS ADJUSTED DIELECTRIC CONSTANT STOCK

Eccostock HiK is a series of low loss plastic stock with adjusted dielectric constants up to 15. Low outgassing properties make them suitable for space applications.

FEATURES AND BENEFITS

- Low loss
- Adjusted dielectric constant

MARKETS

- Commercial Telecom
- Security and Defense

SPECIFICATIONS

TYPICAL PROPERTIES	ECCOSTOCK HiK
Temperature Range °C (°F)	-65 to 110 (-85 to 230)
Density, g/cc	2.2
Dielectric Strength, volts/mil	>200
Dielectric Constant Accuracy	±3%
Dissipation Factor, 1 to 10 GHz	<0.002
Volume Resistivity, ohm-cm	>10 ¹²
Flexural Strength, psi (kg/cm ²)	6500 (457)
Coefficient of Linear Expansion, °C	36 x 10 ⁻⁶
Izod Impact, kg-cm/cm (ft-lb/in of notch)	1.36 (0.25)
Water absorption, %	<0.1
Outgassing (%TML) (%CVM)*	0.38/0.001

Properties will vary to a degree with the dielectric constant. Typical values for the middle of the dielectric constant range are given above. Data for design engineer guidance only. Observed performance varies in application. Engineers are reminded to test the material in application.

* Outgassing data per ASTM E595-07; criteria for acceptability is 1.00% TML and 0.10% CVM.

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
- Sheets: 30.5cm x 30.5cm (12" x 12") in thicknesses of 0.64, 0.95, 1.27, 1.59, 1.91, 2.54, 3.81, 5.08, 6.35 & 7.62 cm (1/4, 3/8, 1/2, 5/8, 3/4, 1.0, 1.5, 2.0, 2.5 & 3.0")
- Rods: 30.5 cm (12") long in diameters of 0.32, 0.64, 0.95, 1.27, 1.59, 1.91, 2.54, 3.81, 5.08, 6.35 & 7.62 cm (1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 1.0, 1.5, 2.0, 2.5 & 3.0")
- Bars: 30.5cm (12") long in squares of 0.64, 0.95, 1.27, 1.59, 1.91, 2.54, 3.81 & 5.08 cm (1/4, 3/8, 1/2, 5/8, 3/4, 1.0, 1.5 & 2.0")
- Other sizes, shapes, thicknesses, dielectrics and configurations are available on special order.

INSTRUCTIONS FOR USE

- 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.

RELATED PRODUCTS

- Eccostock® HiK 500F - A similar material, 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.