Eccostock®HIK500F

High Temperature, Low Loss, Adjusted Dielectric Constant Stock

HIGH TEMPERATURE ADJUSTED DIELECTRIC CONSTANT STOCK

Eccostock HiK500F is a series of low loss plastic material with adjusted dielectric constants up to 30. When subjected to high temperatures, the surface will darken. This however has no adverse effect. Eccostock HiK500F offers low moisture absorption and low outgassing properties for space applications.

FEATURES AND BENEFITS

- Low loss
- Adjusted dielectric constant
- High temperature resistance

MARKETS

- Commercial Telecom
- Security and Defense

SPECIFICATIONS

TYPICAL PROPERTIES	ECCOSTOCK HIK500F
Temperature Range °C (°F)	-56 to 204 (-69 to 400)
Density g/cc	2.2
Dielectric Strength, volts/mil	>300
Dielectric Constant Accuracy K<16 (K>16)	±3% (±10%)
Dissipation Factor, 1 to 10 GHz	<0.002
Volume Resistivity, ohm-cm	$>10^{14}$
Flexural Strength, psi (kg/cm^2)	10,000 (703)
Coefficient of Linear Expansion, °C	36 x 10^{-6}
Izod Impact, kg-cm/cm(ft-lb/in of notch)	1.65 (0.3)
Outgassing (%TML) (%CVCM)*	0.47/0.041

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% CVCM.

APPLICATIONS

- Eccostock HiK500F is primarily used for reducing the overall size of a waveguide by increasing the dielectric constant.
- It can also be used in cavity tuning probes, patch antennas, dielectric lens antennas and dielectric support pieces.
- Since water absorption is low, Eccostock HiK500F can be used in outdoor applications.

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Eccostock® HIK500F

AVAILABILITY

- Eccostock HiK500F is available in the following dielectric constants: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 16, 20, 25 and 30
- 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 HiK500F must be machined using diamond blades. Carbide tools are not recommended and may break due to the hardness of the material. Water solution cooling agents are also highly recommended.

RELATED PRODUCTS

- Eccostock HiK500F can be bonded to itself using Eccostock® HiK Cement with its corresponding dielectric constant.

Mouser Electronics

Authorized Distributor

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Laird Performance Materials:

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