

# ECCOSTOCK® HIK 500F

HIGH TEMPERATURE, LOW LOSS, ADJUSTED DIELECTRIC CONSTANT PLASTIC

## Description :

Eccostock HiK500F is a series of low loss plastic material with adjusted dielectric constants up to 30.

Accuracy of dielectric constant is +/- 3% for most of the series, but at K=16 and above, accuracy is +/-10%.

The materials are usable over a temperature range from -56°C to 204°C. When subjected to high temperature, the surface of Eccostock HiK500F will darken.

This however has no adverse effect.

Eccostock HiK500F offers low moisture absorption and low outgassing properties for space applications.

## Application :

Eccostock HiK500F is used in a variety of RF and microwave applications.

It can be used for reducing the overall size of a waveguide by increasing the dielectric constant, in cavity tuning probes, patch antennas, dielectric lens antennas and dielectric support pieces.



## Typical Properties :

Properties will vary to a degree with the dielectric constant.

Typical values for the middle of the dielectric constant range are given in the table below.

	HiK500F
Colour	White , opaque
Service Temperature (°C)	204
Density (g/cc)	2.2
Dissipation factor 1 to 10 GHz	<0.002
Volume Resistivity (Ohm.cm)	>10 <sup>14</sup>
Dielectric Strength (kv/mm)	11.85
Flexural Strength (kg/cm <sup>2</sup> )	703
Izod Impact (kg-cm/cm)	1.65
Coefficient of Linear Expansion (ppm/°K)	36
Thermal conductivity (W/mK)	0.4
Outgassing :	
TML (%)	0.47
CVCM (%)	0.041



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## 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

Standard sizes are :

**Sheets** 12" x 12" (30.5 cm x 30.5 cm) 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 (30.5 cm) 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 (30.5 cm) 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, 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.



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**Safety Considerations:** It is recommended to consult the EMERSON & CUMING MICROWAVE PRODUCTS product literature, including material safety data sheets, prior to use EMERSON & CUMING MICROWAVE PRODUCTS products. These may be obtained from your local sales office.

**WARRANTY:** Values shown are based on testing of laboratory test specimens and represent data that falls within the normal range of properties of the material. These values are not intended for use in establishing maximum, minimum or ranges of values for specification purposes. Any determination of the suitability of the material or any use contemplated by the user and the manner of such use is the sole responsibility of the user who must assure that the material as subsequently processed meets the needs of this particular product or use. We hope the information given here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the user's consideration, investigation and verification but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale INCLUDING THOSE LIMITING WARRANTIES AND REMEDIES which apply to all goods supplied by us. We assume no responsibility for the use of these statements, recommendations or suggestions nor do we intend them as a recommendation for any use which would infringe any patent or copyright.

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