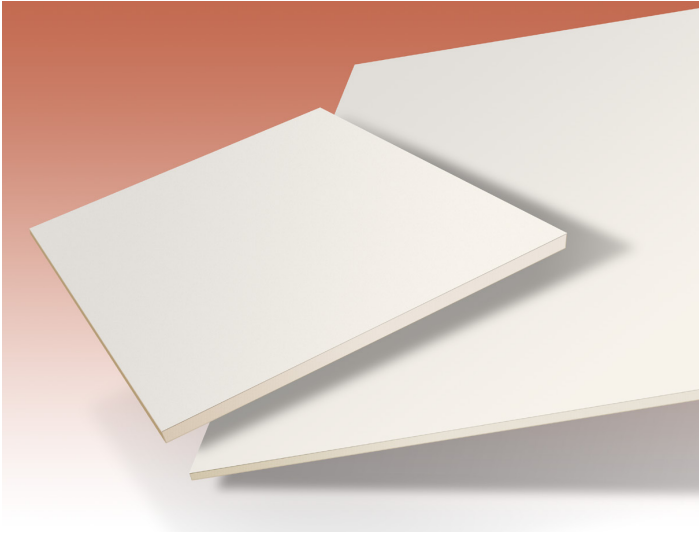


### C-STOCK™ AK

#### Low loss plastic stock with adjusted dielectric constant



#### Description

C-STOCK™ AK is a series of plastic stock materials with an adjusted dielectric constant and low loss tangent, intended for a variety of RF and microwave applications. The available dielectric constants range from 3 to 30.

C-STOCK™ AK is a ceramic filled cross-linked plastic and, unlike sintered ceramics, is readily machined with carbide tools. It has many applications as a dielectric spacer or circuit substrate, tapered permittivity transition, radome, RF lens, or other uses where a machined part of a specific dielectric constant is needed.

C-STOCK™ AK is available in standard dielectric constants of 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 20 and 30.

Other custom dielectric constants between these values are available as a special order.

The material is homogeneous and isotropic to within +/- 5% at all points within the material (+/- 10% for dielectric constant values above 15).

C-STOCK™ AK supersedes C-STOCK™ AK-500.

For a flexible version of the C-STOCK™ AK material see C-STOCK™ AK-S.

All recommendations, statements, and technical data contained herein are based on tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty, either expressed or implied. User shall rely on his own information and tests to determine suitability of the product for the intended use and assumes all risks and liability resulting from his use of the product. Seller's and manufacturer's sole responsibility shall be to replace that portion of the product of this manufacturer which proves to be defective. Neither seller nor manufacturer shall be liable to the buyer or any third person for any injury, loss, or damage directly or indirectly resulting from use of, or inability to use, the product. Recommendations or statements other than those contained in a written agreement signed by an officer of the manufacturer shall not be binding upon the manufacturer or seller.

This document has been reviewed by the PPG Aerospace Export Control Department and has been determined to contain only EAR99 controlled data.

#### Availability

All grades of C-STOCK™ AK are available in standard sheet size 12" x 12" (305 x 305 mm), in thicknesses of 1/8, 1/4, 3/8, 1/2, 1, 2, 3 and 4 inches thick. Unless tolerances are specified, the sheets are normally supplied "as cast", with skins approx. 0.05" to 0.10" over the nominal thickness.

C-STOCK™ AK can be supplied in other sizes, thickness or per customer specified configurations.

All grades are also available in 12" (305 mm) rods and bars in standard diameters/thickness of 1/8, 1/4, 3/8, 1/2, 1, 2 and 3 inches as well as in other custom diameters and thickness.

#### Typical properties

Color	White
Loss tangent	<0.002
Dielectric strength, kV/mm	>8 (>200 V/mil)
Volume resistivity, ohm-cm	>10 <sup>12</sup>
Specific gravity	2.2 - 2.5, depending on grade
Thermal expansion per °C	36 x 10 <sup>-6</sup>
Thermal conductivity	.001 cal-cm/sec-cm <sup>2</sup> -°C 3.0 BTU-in/hr-ft <sup>2</sup> -°F
Service temperature	-55 to +110 °C (-67 to +230 °F)
Short term exposure to 180 °C	(356 °F)

#### Machining

C-STOCK™ AK can be machined using carbide or diamond tools. Relatively slow speeds should be used.

C-STOCK™ AK can be bonded to itself or other materials using a thin layer of epoxy adhesive.

A Prepreg film adhesives can be used to adhere a copper film to the material for circuit applications.

#### Cuming Microwave Corporation

Engineered Materials  
264 Bodwell Street  
Avon, MA 02322  
Telephone +1 (508) 521-6700  
Fax +1 (508) 584-2309  
[www.cumingmicrowave.com](http://www.cumingmicrowave.com)  
Made in the USA  
Issue Date: 06/24  
Supersedes: New  
Lit: #4874