Cuming Microwave Corporation

Cuming Microwave Corporation was formed to focus on technology products for the RF and the EMC industry. We manufacture absorber materials, we design and install anechoic chambers for all RF and EMC applications, and we provide a team to offer full turn key solutions.

In addition, we provide a very broad line of specialty absorber products based on magnetic and dielectric lossy materials, and also provide low loss dielectric materials for applications ranging from space to supersonic airborne to subsea naval.

Founded in 1980 by noted, material scientist Dr. William R. Cuming, Cuming Microwave Corporation provides innovative materials for the electronics and microwave industry. Our microwave material manufacturing facility is located in Avon, Massachusetts, USA.

Cuming Microwave engages in extensive research and development activities to provide customers with cost-effective and creative materials for their specific applications. Custom engineered products and solutions are our specialty.

Contact our local representative or find us on the web at www.cumingmicrowave.com.

Product - Material Guide

Product

C-RAM M T
C-RAM MT FR
C-RAM LF
C-RAM AR
C-RAM LP J & RCJ
C-RAM FDSS
C-RAM FFS
C-RAM GDSS
C-RAM GDX
C-RAM FLX
C-RAM RGD
C-RAM RGD-S
C-RAM KR
C-RAM KR-S
C-RAM KFE
C-RAM KFS
C-RAM 369
C-RAM 369 RT
C-RAM HC
C-RAM 325

Application

Telecommunications
Fiber Optics
Wireless
Antenna
Medical
Defense

324 Bodwell Street, Avon, MA 02322  T: 508 521-6700  F: 508 584-2309  sales@cumingmicrowave.com  www.cumingmicrowave.com
## Foam Absorbers

- **Product Name:** low loss material
- **Description:** Flat, thin dielectric radar absorbers, foam based. Products are either single or multi-layered foam that are electrically graded or separated by resistive films. Excellent broad-banded and off-angle performance.
- **Applications:** used for reducing RCS, preventing unwanted reflections and scattering.

## Liquid & Sprayable Absorbers

- **Product Name:** C-RAM 320-1
- **Description:** Broadband, low cost, flexible sheet carbon foam
- **Applications:** used for RCS, preventing unwanted reflections and scattering.

## Honeycomb & High Power Absorbers

- **Product Name:** C-RAM 330-1
- **Description:** High power absorbers, honeycomb & sprayable iron for use in anechoic chambers.
- **Applications:** used for RCS, preventing unwanted reflections and scattering.

## Anechoic Chambers & Absorbers

- **Product Name:** C-RAM 360-1
- **Description:** High performance, high power absorbers for use in anechoic chambers.
- **Applications:** used for RCS, preventing unwanted reflections and scattering.

## Specialty Products

- **Product Name:** C-Stock AK
- **Description:** Dielectric substrates, adjusted dielectric material, easy to machine, high performance.

## Dielctric Materials

- **Product Name:** C-Stock 0005
- **Description:** Dielectric substrates, low dielectric constant, low loss tangent, easy to machine.

### Table for Dielctric Materials

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
<th>Density</th>
<th>Dielectric Constant</th>
<th>Dielectric Loss Tangent</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-Stock 0005</td>
<td>0005</td>
<td>1.0</td>
<td>2.54</td>
<td>0.0004</td>
<td>High precision microwave and millimeter wave applications, easy to machine, low dielectric constant, low loss tangent.</td>
</tr>
<tr>
<td>C-Stock AK</td>
<td>0005</td>
<td>3.0</td>
<td>2.0 - 3.0</td>
<td>0.002</td>
<td>High performance, high power absorbers for use in anechoic chambers.</td>
</tr>
</tbody>
</table>

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Cuming Microwave offers a wide range of products, including

- **Foam Absorbers**
- **Liquid & Sprayable Absorbers**
- **Honeycomb & High Power Absorbers**
- **Anechoic Chambers & Absorbers**
- **Specialty Products**

Our products are designed to meet the specific needs of various applications, from reducing RCS to preventing unwanted reflections and scattering. Whether you require broad-banded or off-angle performance, we have the solution for you. For more information, please visit our website or contact us today.
**Foam Absorbers**

- **Low cost, lossy, RF energy absorber**
- 0.125” to 4.0”
- Carbon foam
- Moderate performance
- 320-3 broadband (2 to 100 GHz)

**Rubber Absorbers**

- **High performance, low density, thin, flexible**
- 0.080” to 18 GHz
- UHF frequency mode suppression
- 310-4 C-RAM FDSS

**Liquid & Sprayable Absorbers**

- **Thin, flexible, low loss dielectric**
- 0.030” & up
- Epoxy, rigid
- Average performance
- 330-1 casting resin
- C-RAM GDX

**Honeycomb & High Power Absorbers**

- **Low density, high power, honeycomb absorber**
- 0.020” & up
- 2.0 GHz & up
- Silicone casting resin
- C-RAM KR-S

**Synthetic Foam**

- **High power, high density, synthetic foam**
- 0.1” to 2.0”
- Closed cell foam, high density, high and standard performance
- 210-5 C-Stock RH

**Anechoic Chambers & Absorbers**

- **Dielectric materials**
- 0.004 K = 1.7 - 1.9
- Loss tangent = 0.0004
- Low loss dielectric, closed cell foam, low density, dielectric substrates, etc.

**Dielectric Materials**

- **Cyanate Ester**
- Average performance
- 2.0 GHz & up
- Truncated absorber for EMC chambers
- C-RAM CFC

**Specialty Products**

- **Curing Rayon®**
- Epoxy for cast in place applications
- 0.030” & up
- C-RAM KR-S, 369

**Cuming Microwave**

Cumming Microwave Corporation offers an extensive line of high performance absorbers, in convoluted and pyramidal shapes for microwave applications. These materials are designed for use in anechoic chambers, ranges and test boxes. Materials are available from 20 MHz to > 100 GHz. Cumming Microwave offers design, construction and turn-key installation of anechoic chambers. Products have unique dielectric and physical properties, and are designed for antenna, horn, grid, mother, high and low, liquid and honeycomb. Electronic materials can be used for electromagnetic space or cavity, antenna, tapered matching transition, volume, size, etc. in order to achieve part of specific absorption capability and control.

**Dielectric Absorbers**

- **Liquid & Sprays**
- Coatings designed for suppression of RF waves and currents traveling along conductive surfaces, and for can be brushed or sprayed onto products available as casting materials for suppression of energy in electronic units. Products are available in epoxy; silicone or dependent on frequency of use.

**Dielectric Properties**

- **Materials with controlled dielectric constants**
- Low loss tangent = 0.0001
- High loss tangent = 0.0004
- Lossy or very low loss tangent = 0.004

**Dielectric Materials**

- **Diaphragm**
- Materials with controlled dielectric constants and low loss tangents.
- Stock sheets, dielectric or lossy or very low loss tangent.
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**Materials & Applications**

- **Ferrite tile**
- High power, high frequency absorber
- 100 MHz & up
- Outdoor pyramidal absorber
- C-RAM FAC

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### Foam Absorbers
- **C-RAM AR**: Absorber designed for suppression of RF noise and unwanted reflections. Used for antenna, waveguide, and other high-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
- **C-RAM AR-2**: Absorber designed for high-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
- **C-RAM AR-3**: Absorber designed for medium-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
- **C-RAM AR-4**: Absorber designed for low-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.

### Rubber Absorbers
- **C-RAM RF**: Rubber absorbers designed for suppression of RF noise and unwanted reflections. Used for antenna, waveguide, and other high-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
- **C-RAM RF-2**: Rubber absorbers designed for high-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
- **C-RAM RF-3**: Rubber absorbers designed for medium-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
- **C-RAM RF-4**: Rubber absorbers designed for low-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.

### Liquid & Sprayable Absorbers
- **C-RAM LS**: Liquid & sprayable coatings designed for suppression of RF noise and unwanted reflections. Sold in custom cuts, available in 0.125" to 12" thick sheets.
- **C-RAM LS-2**: Liquid & sprayable coatings designed for high-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
- **C-RAM LS-3**: Liquid & sprayable coatings designed for medium-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
- **C-RAM LS-4**: Liquid & sprayable coatings designed for low-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.

### Honeycomb & High Power Absorbers
- **C-RAM HPA**: Honeycomb & high power absorbers designed for suppression of RF noise and unwanted reflections. Used for antenna, waveguide, and other high-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
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### Anisotropic Chambers & Absorbers
- **C-RAM AC**: Anisotropic chambers & absorbers designed for suppression of RF noise and unwanted reflections. Used for antenna, waveguide, and other high-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.
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### Diellectric Materials
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### Specialty Products
- **C-RAM SK**: Specialty products designed for suppression of RF noise and unwanted reflections. Sold in custom cuts, available in 0.125" to 12" thick sheets.
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- **C-RAM SK-4**: Specialty products designed for low-frequency applications. Sold in custom cuts, available in 0.125" to 12" thick sheets.

### Cumming Microwave

Cuming Microwave offers extensive product offerings for unique applications. Products and services include radar absorbing structures, materials, and assemblies; dielectric and artificial dielectric materials; and engineered microwave absorbers. Cuming Microwave offers a wide range of products and services, including custom designs and prototypes, to meet the specific needs of each application.
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Microwave Absorbers, Shielding Materials and Specialty Dielectrics Applications
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