



CUMING MICROWAVE

CYANATE ESTER SYNTACTIC FOAMS

RoHS
Compliant

TECHNICAL BULLETIN 370-2

Cuming Microwave Corporation offers a series of syntactic foams, both low loss dielectric, and treated lossy materials. These lightweight, high strength materials can be tailored to meet specific program requirements. Both the dielectric and lossy properties can be adjusted to meet unique project applications.

Cuming Microwave Corporation's cyanate ester syntactic materials are available in uncured, pack-in-place, cured sheet stock and molded to shape. The Pack-In-Place has the consistency of wet sand, and is readily packed into complex shapes. The product can be purchased as a 250 °F cure or a 350°F cure material. Please contact Cuming Microwave's Technical Staff to discuss the specifics of your application.

Low loss dielectric parameters can be adjusted with the use of metallic fillers. We can also add loss to the material with various lossy fillers.

Range of Properties of Syntactic Foams

Mechanical Properties

| | |
|-------------------------------|---------------------------------|
| Density, lb/ft ³ : | 12 – 20 |
| Tensile Strength, psi: | 300 – 1000 |
| Compressive Strength, psi: | 400 – 1200 |
| Shear strength, psi: | 50 – 200 |
| CTE: | 13 x 10 ⁻⁶ /°F |
| T _g (°C), minimum: | 175 – 205 |
| Service Temp., °F: | 275 – 350 |
| | depending on grade and postcure |

Electrical Properties

| | |
|------------------------------|--------------|
| Dielectric constant, 10 GHz: | 1.22 – 3.00 |
| Loss tangent, 10 GHz: | 0.004 – 0.37 |

Typical Properties for Unloaded Cyanate Ester Syntactic Foam (two density grades):

| <u>Mechanical Data</u> | <u>13.5 PCF</u> | <u>17.5 PCF</u> |
|---------------------------------|-----------------|-----------------|
| Density, lbs./ft ³ : | 13.5 | 17.5 |
| Tensile Strength, psi: | 320 | 680 |
| Compressive Strength, psi: | 510 | 900 |

Electrical Data

| | | |
|----------------------|-------|-------|
| Dielectric Constant: | 1.27 | 1.32 |
| Loss Tangent: | 0.004 | 0.005 |

The information in this technical bulletin, although believed to be accurate, is not to be taken as a warranty for which Cuming Microwave assumes legal responsibility, nor as permission or recommendation to practice any patented invention without license; it is offered for verification by the customer, who must make the final judgment of suitability for any application.

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