



## C-RAM MT

RoHS  
Compliant

### TECHNICAL BULLETIN 320-2

#### LOSSY, CARBON FILLED, FLEXIBLE FOAM SHEET STOCK

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C-RAM MT is a series of flexible, lightweight lossy plastic foam sheet materials. A very broad frequency range of dielectric loss is achieved through carbon loading of the foam. C-RAM MT can be used to lower the Q of cavities, attenuate surface currents, absorb stray RF energy, isolate components and plug areas of RF leakage. It is a lossy load material; applications requiring a free space reduction of reflectivity should be addressed with C-RAM LF (see Technical Bulletin 320-1).

C-RAM MT is available in several grades having varying levels of carbon loading, hence varying tangents. Each grade is available in a range of thicknesses. The material is a soft foam and is easily cut with a sharp knife. Cuming Corporation can also supply C-RAM MT with a peel-and-stick backing, and can die-cut or machine parts to specifications.

C-RAM MT-FR is a fire retardant grade. C-RAM MT is treated with fire retardant additives during its manufacturing cycle. C-RAM MT FR meets UL-94-HF-2 requirements.

#### TYPICAL PROPERTIES

Color: Black

Density (dependent upon grade):  
.06 to .13 g/cm<sup>3</sup> (4 to 8 lb/ft<sup>3</sup>)

Service temperature: -50 to +120°C  
-85 to =250°F)

Tensile strength: 12 psi

Elongation, min.: 150%

Tear Strength: 1.5lb/inch

Compression set, 80%: 5%

Compression set, 90%: 10%

Resiliency: 45%

Insertion loss: see table on next page

#### METHOD OF APPLICATION

C-RAM MT can be readily cut with a sharp knife or a steel rule die to intricate shapes.

The normal method of applying C-RAM MT to a substrate is with a neoprene contact adhesive. For best results, the adhesive is brushed or rolled onto the substrate and allowed to dry tack-free (at least one hour). Adhesive is then applied to the back of the C-RAM MT, and then, when the adhesive is still tacky but no longer wet (usually about 2-3 minutes), the part is pressed against the coated substrate for an immediate and permanent bond.

Cuming Microwave offers C-BOND 287, a solvent based, non-flammable, neoprene contact adhesive for applying C-RAM MT. See Technical Bulletin 230-5.

As an alternative, C-RAM MT can be supplied with pressure sensitive adhesive (PSA), which, while not as a contact adhesive, will provide an adequate bond in most applications, since the material is quite lightweight. Simply peel off the backing, and press the part firmly to a clean surface. The PSA will adhere with high tack to metals, wood, and many plastic surfaces.

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Document Control No.: N-07-000-00108-D  
06/13/07 Page 1 of 2

## TABLE OF INSERTION LOSS AND ATTENUATION

GRADE	INSERTION LOSS, dB/cm (dB/inch)			ATTENUATION, dB/cm (dB/inch)
	1 GHz	3 GHz	10 GHz	3GHz
MT-14	0.2 (0.5)	0.4 (1.0)	0.9 (2.2)	0.4 (1.0)
MT-16	0.7 (1.8)	1.5 (3.8)	2.0 (5.0)	1.4 (3.5)
MT-18	0.9 (2.3)	1.8 (4.0)	2.8 (7.0)	1.5 (3.7)
MT-20	1.8 (4.5)	3.2 (8.0)	5.1 (13.0)	3.0 (7.5)
MT-22	2.2 (5.5)	3.9 (10.0)	6.3 (16)	3.7 (9.5)
MT-24	3.5 (14)	11 (32)	24 (60)	11 (27)
MT-26	4.9 (19)	16 (46)	34 (89)	16 (39)
MT-30	16 (40)	24 (60)	43 (110)	19 (49)

NOTE: Insertion loss measurements include the effects of surface reflections; the above values are close to, but not exactly, linear with thickness. For example, a ¼ inch thick piece has somewhat more than 1/4<sup>th</sup> as much insertion loss as a one inch thick piece.

Attenuation is a measure of loss within a homogeneous material, and does not take into account any reflections at interfaces. It is independent of thickness. This is a calculated, not measured, value.

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## AVAILABILITY

All grades of C-RAM MT are available in four standard thicknesses-- .125" (3.2mm), .250" (6.4 mm), .375" (9.5 mm), .500" (12.7mm), .750" (19.1 mm), 1.000" (25.4 mm)

Standard dimensions for all grades are flat sheets 610 x 610 mm (24 x 24in). Specify the part as C-RAM MT-xx, where xx is the grade, followed by the thickness in inches (.125, .250, .375, .500, .750, 1.000).

We can supply other dimensions, and can be die-cut or machine parts to your drawings. It is possible to supply large and thick parts with a waterproof coating for outdoor uses. Consult Cuming Microwave for more details.

C-RAM MT can also be supplied with a peel-and-stick pressure sensitive adhesive backing (specify by adding a /PSA suffix to the part name). This eliminates the need to work with liquid adhesive systems.

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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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