

ECCOSORB® CR500

High Temperature, Two-Part Castable Load Absorber Series

Material Characteristics

- Castable resin series that when fully cured, will duplicate the physical and electrical properties of its counterpart in the ECCOSORB® MF500 series. For example, ECCOSORB® CR500-117 is the equivalent to ECCOSORB® MF500-117.
- Frequency range from 1 - 18 GHz
- Dark Gray in color
- Low out-gassing properties for space applications

Applications

- ECCOSORB® CR500 can be used to mold waveguide terminations, attenuators, and loads to size

Shipping & Availability

- ECCOSORB® CR500 is available in six castable versions, CR500-110, CR500-112, CR500-114, CR500-116, CR500-117, & CR500-124
- ECCOSORB® CR500 is supplied as a two-part system consisting of a Component X and Component Y in 2 pound (quart) and 5 pound (gallon) kits. It is not a hazardous material
- Shelf life is approximately 6 months when stored unmixed in a well sealed container at temperatures no higher than 77 °F

Instructions for Use

- Prepare mold by applying a thin coat of butchers wax
- Mix Part X in its shipping container to a uniform consistency before removing any material
- If crystals appear in Part Y, gently heat to 150 °F until crystals go into solution
- Weigh out the desired amounts of both Part X and Part Y in accordance with the table at right
- Heat Part X to about 150 °F. This will reduce the viscosity substantially and improve pourability. Note: in an effort to drop viscosity do not dilute with any chemical as this would alter the electrical performance of the material
- Thoroughly blend Part X and Part Y. Remove entrapped air, if necessary, by vacuum evacuation
- Pour into mold (pot life at 150 °F is about 1 hour) and cure per the below schedule. The mold is also preferably preheated to about 150 °F
- Clean up can be done with a solvent such as MEK

Typical Properties

Service Temperature, °F (°C)	<500 (<260)
Specific Gravity	1.6 to 4.6
%TML (Cured CR500-124)	.163
%CVCM (Cured CR500-124)	.074
Shelf Life at temp. no higher than 77 °F	6 months

ECCOSORB® CR500 can be used for short periods at 500°F (260°C) permitting use at high power levels. Exposure to high temperatures should be limited. Slow change in physical and electrical properties occurs at temperatures above about 350°F (177°C)

Recommended Frequency and Mixing Ratios by Weight

Series	Range (GHz)	Part X	Part Y
CR500-110	26+	100	24.4
CR500-112	12 - 18	100	17.0
CR500-114	10 - 14	100	9.6
CR500-116	6 - 12	100	5.9
CR500-117	4 - 8	100	4.6
CR500-124	5 and below	100	3.6

Instructions for Use

- Unlike ECCOSORB® CR or CRS, ECCOSORB® CR500 requires a 4-step cure cycle to achieve its high temperature properties
- Cure cycle is as follows:
 - > 8 hours at 200°F (93°C)
 - > then 12 hours at 250°F (121°C)
 - > then 5 hours at 300°F (149°C)
 - > then 3 hours at 350°F (177°C)
- If small volumes of materials are to be cured, the cycle can be accelerated, but the stepped temperatures should be retained



Typical Attenuation

	GHz	10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	1.0	3.0	8.6	10.0	18.0
CR500-110	dB/cm	0	0	0	0	0	0	0.01	0.09	0.26	2.0	2.2	6.6
	dB/in	0	0	0	0	0	0	0.03	0.23	0.66	5.0	5.6	17
CR500-112	dB/cm	0	0	0	0	0	0	0.02	0.16	0.59	4.9	5.6	10.1
	dB/in	0	0	0	0	0	0	0.05	0.41	1.5	12.4	14.2	25.7
CR500-114	dB/cm	0	0	0	0	0	0	0.04	0.57	2.2	10.8	13.2	24.9
	dB/in	0	0	0	0	0	0	0.10	1.4	5.6	27.4	33.5	63.2
CR500-116	dB/cm	0	0	0	0	0	0	0.09	1.3	5.0	21	32	57
	dB/in	0	0	0	0	0	0	0.23	3.3	12.7	53	81	145
CR500-117	dB/cm	0	0	0	0	0	0.03	0.27	2.8	11	46	56	119
	dB/in	0	0	0	0	0	0.08	0.69	7.1	28	117	142	302
CR500-124	dB/cm	0	0	0	0	0	0.03	0.48	6.5	20	63	67	149
	dB/in	0	0	0	0	0	0.08	1.2	16.51	50	160	170	378

*Note: Attenuation is a theoretical property calculated from the Complex Permittivity and Complex Permeability of a lossy material and is strictly a means of comparing one absorbing material to another. The attenuation properties are not an indication of how the material will perform inside a microwave device. For further electrical and physical properties of the ECCOSORB® CR500 series, please see the Typical Electrical Properties Table on the ECCOSORB® MF500 technical bulletin

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