EMERSON & CUMING MICROWAVE PRODUCTS

RoHS Compliant

ECCOSORB® CR

Two-Part Castable Load Absorber Series

Material Characteristics

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

Applications

- ECCOSORB® CR can be used to mold waveguide terminations, attenuators, and loads to size
- ECCOSORB® CR can also be used to precisely pot small amounts of absorber in or around areas of RF leakage

Shipping & Availability

- ECCOSORB® CR is available in six castable versions, CR-110, CR-112, CR-114, CR-116, CR-117, & CR-124
- ECCOSORB® CR is supplied as a two part system consisting of a Component X and Component Y in 2 pound (quart) and 5 pound (gallon) kits
- Both CR-117 and CR-124 are available in premixed and frozen 5cc, 10cc, and 30cc syringes. No Mixing is needed. Note: Premixed and frozen packaging requires storage at –40°F (-40°C) and shelf life is 3 months. Minimum buy is 100 syringes for any size.
- Component Y ships as a hazardous material: Class 6.1, UN1673, P/G III

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)	<356 (<180)
Specific Gravity	1.6 to 4.6
Thermal Expansion Coefficient (°C)	30 x 10^{-6}
Izod Impact, ft-lb/in of notch (ergs/cm)	0.3 (1.6 x 10^{6})
Water Absorption, %, 7 days immersion	0.1
Flexural Strength, psi (kg/cm^2)	15,000 (1050)
%TML	0.08 - 0.51
%CVCM	0.001 - 0.01
Shelf Life at temp. no higher than 77 °F	6 months

Recommended Frequency and Mixing Ratios by Weight

Series	Range (GHz)	Part X	Part Y
CR-110	26+	100	12.0
CR-112	12 - 18	100	8.2
CR-114	10 - 14	100	4.8
CR-116	6 - 12	100	3.0
CR-117	4 - 8	100	2.3
CR-124	5 and below	100	2.0

Recommended Cure Schedule

Temperature	Cure Time
165°F (74°C)	12 hours
200°F (93°C)	4 hours
250°F (121°C)	2 hours
300°F (149°C)	1 hour

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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
CR-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
CR-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
CR-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
CR-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
CR-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
CR-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® CR series, please see the Typical Electrical Properties Table on the ECCOSORB® MF technical bulletin

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