

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 |



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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