



ECCOSORB® CRS

High-Loss, Two-Part Castable RTV Silicone Absorber

Material Characteristics

- Castable RTV silicone rubber with high-loss in the microwave frequency range. Dark gray in color.
- When fully cured, ECCOSORB® CRS will duplicate the electrical properties of its counterpart in the ECCOSORB® MFS series. For example, ECCOSORB® CRS-117 is electrically equivalent to ECCOSORB® MFS-117.
- Being a true elastomer, ECCOSORB® CRS when cured, has a number of distinct advantages over rigid materials of the ECCOSORB® MF type.
- For electrical and physical properties of the ECCOSORB® CRS series, please see the Technical Bulletin on ECCOSORB® MF.
- Frequency range from 1 18 GHz
- Low out-gassing properties

Applications

- ECCOSORB® CRS can be used to cast cones, wedges, and pyramids for terminations and loads
- It can also be used to fill cavities or be painted on surfaces to suppress the flow of currents. Therefore, ECCOSORB® CRS finds use in antennas and transmission lines. It has also been poured around the base of microwave tubes to prevent undesired energy flow
- ECCOSORB® CRS can also be poured in place to form microwave gaskets
- When bonded to surfaces, ECCOSORB® CRS will withstand temperature cycling (even to cryogenic temperatures). It can be deformed and shaped to contoured surfaces and is not subject to damage from impact or shock

Availability

- ECCOSORB® CRS is supplied as a two component system consisting of a Component A and Component B in 2 pound (quart) and 8 pound (gallon) kits. It does not ship as a dangerous good.
- Both CRS-117 and CRS-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.
- Shelf life is approximately 6 months when stored unmixed in a well sealed container. This material can be stored frozen to increase shelf life.

Instructions for Use

- Part A is supplied as a high viscosity paste. In all cases a small amount of Part B is added. See table below for actual mix ratios by weight
- To insure void-free castings, the entrapped air should be removed by vacuum de-airing
- The mixture converts to flexible, high temperature silicone rubber at room over night or elevated temperatures of 175 °F for 3 hours. Where use temperature is anticipated above 250 °F (121°C), a post cure is recommended. Gradually raise cast parts to the use temperature over an 8 hour or longer period
- If cast around inserts, they place negligible curing pressures on them
- The ECCOSORB® CRS will adhere to themselves but will release from most other surfaces. Therefore, metal or epoxy molds are suitable for cast shapes. If adhesion is required, a primer must first be used
- Members of the ECCOSORB® CRS series can be bonded to other materials with ECCOBOND® TP-50. A wipe-on coat of ECCOBOND® TP-50 will give cast or molded pieces extra environmental protection

Typical Properties

	CRS-117	CRS-124		
Density, g/cc	4.16	4.55		
Max. Service Temperature, °F (°C)	320 (160)	320 (160)		
Thermal Expansion, °F (°C)	35 x 10 ⁻⁶ (63 x 10 ⁻⁶)	33 x 10 ⁻⁶ (59 x 10 ⁻⁶)		
Thermal Conductivity, (cal)(cm)/(sec)(cm²)(°C) (BTU)(in)/(hr)(ft²)(°F)	0.0021 6.0	0.0024 7.0		
Hardness, Shore A	75	75		
Water Absorption, % 24 hours	< 0.1	< 0.1		
Dielectric Strength, volts/mil (Kv/cm)	>10 (>4)	>10 (>4)		
Volume Resistivity, ohm-cm	>1010	>10 ¹⁰		
Relative Impedance, Z/Zo	0.3	0.4		
Mix Ratio by weight, A:B	100:1.18	100:1		

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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
CRS-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
CRS-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® CRS series, please see the Typical Electrical Properties Table on the ECCOSORB® MFS technical bulletin

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