EMERSON & CUMING MICROWAVE PRODUCTS

RoHS Compliant

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)	35×10^{-6} (63×10^{-6})	33×10^{-6} (59×10^{-6})
Thermal Conductivity, (cal)(cm)/(sec)(cm^2)(°C) (BTU)(in)/(hr)(ft^2)(°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	$>10^{10}$	$>10^{10}$
Relative Impedance, Z/Zo	0.3	0.4
Mix Ratio by weight, A:B	100:1.18	100:1

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