EMERSON &CUMING MICROWAVE PRODUCTS

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# ECCOSORB® BSR

## High-Loss, Ultra-Thin, Elastomeric Microwave Absorber

### Material Characteristics

- Thin, flexible, high-loss, electrically non-conductive silicone rubber sheet
- Available in two types, ECCOSORB® BSR-1 and ECCOSORB® BSR-2, *see Typical Properties*
- Frequency range from 1 - 25 GHz
- Low out-gassing properties for space applications
- Can be easily cut with a knife, scissors, and fitted to compound curves

### Applications

- ECCOSORB® BSR is engineered to reduce or eliminate surface currents, cavity resonance, coupling, and generally dampen reflections
- ECCOSORB® BSR recommended for use in high reliability aerospace, military, and space applications, exhibiting excellent thermal cycling, shock and vibration absorption characteristics

### Availability

- ECCOSORB® BSR is available in 12" x 12" sheets (30.5 cm x 30.5 cm), in thicknesses of 0.010" (0.25mm), 0.020" (0.51mm), 0.040" (1.01mm), 0.060" (1.52mm), and 0.100" (2.54mm)
- For most applications ECCOSORB® BSR can be supplied with a Pressure Sensitive Adhesive (PSA) Product designation denoting ECCOSORB® BSR with a PSA is ECCOSORB® BSR-X/SS-6M
- ECCOSORB® BSR is available in other thicknesses, sizes, and customer specified shapes upon request
- Die cut parts can be supplied kiss cut for ease of usage in high volume applications

### Instructions for Use

- For applications where the service temperature exceeds 300°F (ECCOSORB® SS-6M, PSA service temperature) ECCOSORB® BSR can be bonded to most substrates using a 2 part RTV adhesive

### Typical Properties

| | |
|---|---|
| Frequency Range, BSR-1 | 1-12 GHz |
| Frequency Range, BSR-2 | 10-25 GHz |
| Service Temperature, °F (°C) | -65 to 320 (-54 to 160) |
| Weight, lbs/ft$^2$ (kg/m$^2$); 0.010" thick | 0.23 (1.1) |
| Hardness, Shore A | >70 |
| Volume Resistivity, ohm-cm | 2 x $10^8$ |
| Thermal Expansion per °F (°C) | 35 x $10^{-6}$ (63 x $10^{-6}$) |
| Thermal Conductivity, (cal)(cm)/(sec)(cm$^2$)(°C) | 0.0021 |
| (BTU)(in)/(hr)(ft$^2$)(°F) | 6.0 |
| Water Absorption, % 24 hours | <0.1 |
| %TML (with SS-6M) | 0.47 (0.29) |
| %CVCM (with SS-6M) | 0.28 (0.08) |
| Dielectric Strength, volts/mil | >10 |

### Typical Attenuation Properties dB/cm

| Frequency (GHz) | 5.0 | 10.0 | 18.0 | 25.0 |
|---|---|---|---|---|
| ECCOSORB® BSR-1 | 23 | 65 | 112 | 135 |
| ECCOSORB® BSR-2 | 20 | 55 | 95 | 115 |

*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 in no way an indication of how the material will perform inside a microwave device. The frequencies of use recommended for ECCOSORB® BSR-1 & ECCOSORB® BSR-2 in the Typical Properties Table of this bulletin are based on application experience at Emerson & Cuming Microwave Products Inc.