Eccosorb® SF

Thin, Flexible, Resonant Microwave Absorber



RESONANT MICROWAVE ABSORBER

Eccosorb SF is a narrow banded, magnetically loaded resonant absorber sheet for free-space applications. These silicone rubber sheets are designed to be bonded to flat or curved metallic surfaces to reduce the reflectivity in a narrow band of frequencies. Eccosorb SF reflects -20 dB or less of normally incident microwave energy at the design frequency in the range of 1 to 26 GHz.

FEATURES AND BENEFITS

- High power performance
- Narrow band performance
- Low outgassing properties

MARKETS

- Commercial Telecom
- Security and Defense
- Automotive

SPECIFICATIONS

TYPICAL PROPERTIES	ECCOSORB SF
Max service temperature °C (°F)	163 (325)
Power Handling W/cm²	0.2
Hardness (Shore A)	73
Density Range g/cm³	2.4-4.5
Tensile Strength (MPa)	1.0-6.0
Elongation at break %	20 - 100
Tear Strength N/mm	0.2-2.0

Data for design engineer guidance only. Observed performance varies in application. Engineers are reminded to test the material in application.

APPLICATIONS

- Lining radar nacelles and the exterior of airframes particularly where high power is present.
- Lining of cavity backed and shrouded telecommunication antennas where narrowband performance is required.
- Lining metal surfaces of vehicles to reduce overall radar signature.
- Attaching to masts of ships, walls, etc to reduce reflections and echoes from nearby antennas.
- Lining magnetron housings to prevent detuning.
- Fabricating into tapered shapes for impedance matching in waveguide or microstrip applications.
- Lining metal surfaces to attenuate surface currents, suppressing reflections inside microwave modules, and dampening cavity resonances in microwave modules.
- For module interference, cavity resonance and surface current problems, ECCOSORB® GDS, ECCOSORB® MCS and ECCOSORB® BSR are recommended due to their high magnetic loss properties, broad band performance, as well as the availability of a wider range of thicknesses (0.010” to 0.100”).

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AVAILABILITY

- Standard sheets are 305 x 305mm (12”x12”)
- Thickness varies depending on resonant frequency desired.
- Other resonant frequencies from 0.7 to 40 GHz can be supplied on special order
- The material can also be supplied in customized shapes and can be supplied with a pressure sensitive adhesive (PSA).

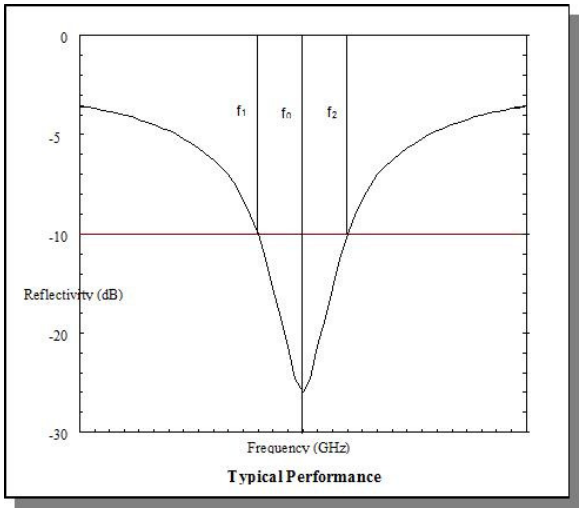
INSTRUCTIONS FOR USE

- Eccosorb SF is designed to function directly in front of a metallic surface. If this is not the case, a metallic foil should first be bonded to the object.
- For optimum performance, material is recommended and can be supplied with a metal backing (-ML)
- To obtain a strong bond of the absorber to the object, clean the surface with a degreasing solvent, apply a thin coat of primer to the dried surface and apply an RTV silicone adhesive.
- Eccosorb SF can be readily cut with a sharp knife and template.
  It is a very flexible material and will conform to mild curvatures.

RELATED PRODUCTS

- For corrosive environments, see Eccosorb® DSF
- For better abrasion resistance, see Eccosorb® SF-U

Typical Reflectivity Performance



The performance of ECCOSORB® SF is defined by reflectivity at a single frequency. A generalized performance curve is shown above. The design frequency f0, has a ±5% bandwidth, designated as f1 and f2. Although performance degrades with increased incidence angle, at incident angles out to 45°, reflectivity of -16dB has been demonstrated.

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