

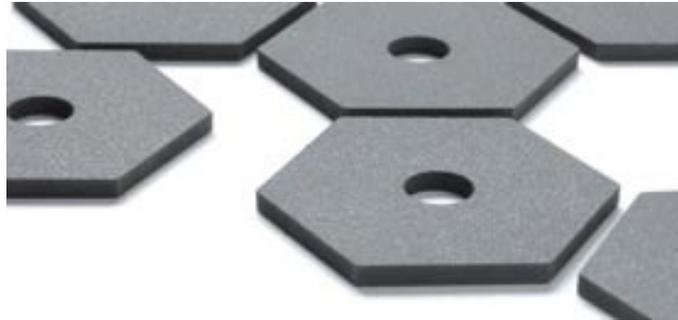
THIN, FLEXIBLE, RESONANT, MICROWAVE ABSORBER

Description:

Eccosorb SF is a series of thin, flexible, flat-sheet, resonant absorbers which reflect -20 dB or less of normally incident microwave energy at the design frequency in the range of 0.7 to 40 GHz.

It concerns magnetically loaded silicone rubber sheets which are designed to be bonded to flat or curved metallic surfaces to reduce the reflectivity in a narrow band of frequencies.

Silicone absorbers have high service temperature capability (165°C continuous) and allow short exposures to higher temperatures. The product offers advantages for high power and low out-gassing applications and can be subjected to outdoor environments and high altitudes, including space, with no adverse effects. However, in corrosive environments its dielectrically loaded counterparts Eccosorb DSF and DSF-U are recommended. If a self-adhesive backing is required, the urethane version Eccosorb SF-U is recommended.



Designed to fit the application. Emerson & Cuming Microwave Products develops specialized microwave absorbers in a myriad of forms to suit every specific application.

Application:

Eccosorb SF is suited for applications requiring absorption at a specific frequency or in a narrow frequency band, including:

- lining radar nacelles, particularly where high power is present
- attaching to masts of ships, walls, etc. to reduce reflections and echoes from nearby antennas
- attaching to vehicles to reduce radar signature.
- lining magnetron housings to prevent detuning.
- fabricating into tapered shapes for impedance matching in waveguide or microstrip applications.
- suppressing reflections, surface currents and cavity resonances inside microwave modules.
- lining of cavity backed and shrouded telecommunication antennas where narrowband performance is required e.g. waveguide feeds.

For module interference, cavity resonance and surface current problems where no specular reflectivity performance is required, Eccosorb GDS, Eccosorb MCS, Eccosorb BSR and Eccosorb FGM-40 are recommended due to their high magnetic loss properties.

ECCOSORB[®]SF and SF-D

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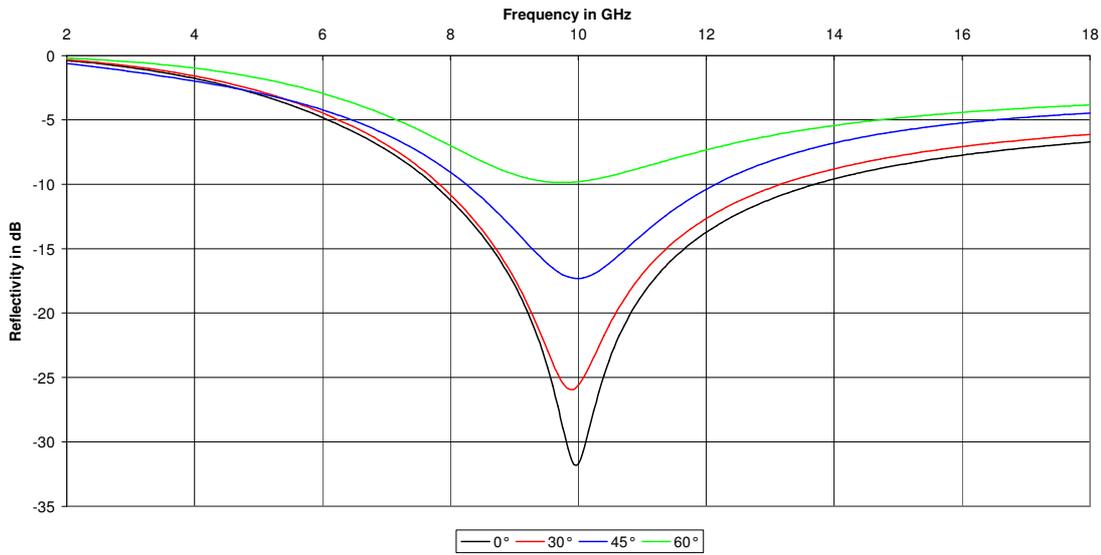
Physical Properties:

Colour	grey
Dimensions (mm)	305x305
Thickness range (mm)	0.7 to 7.0
Surface density range (kg/m ²)	2.2 to 31.0
Density range (g/cm ³)	2.3 to 5.1
Tensile strength (MPa)	1.0 to 6.0
Elongation at break (%)	20 to 100
Tear strength (N/mm)	1.1 to 2.0
Hardness (Shore A)	73
Maximum service temperature (°C)	165

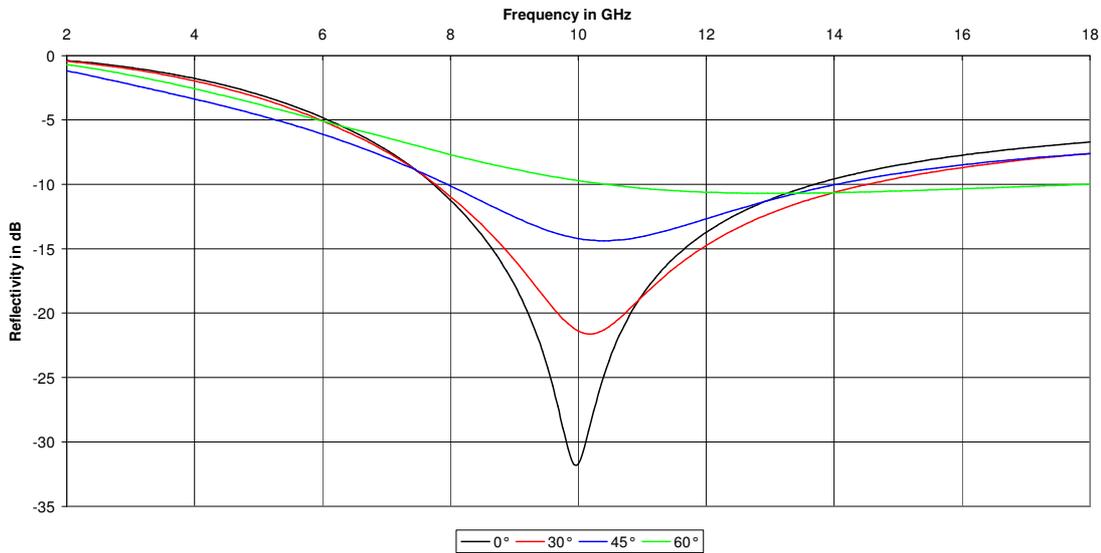
SF-D is standard SF but post cured for 16 hours at 180°C (to meet NASA outgassing specifications)

Electromagnetic properties:

Typical reflectivity at various angles of incidence
 ECCOSORB SF-10
 Perpendicular polarization



Typical reflectivity at various angles of incidence
 ECCOSORB SF-10
 Parallel polarization



Eccosorb SF-XX-D



Outgassing-Important Note

Eccosorb SF-XX-D to indicates that the material has undergone a post cure of 16 hours at 180°C .

This treatment leaves the material surface discoloured although there is no measured change in the electromagnetic properties.

Be advised that Laird / Emerson & Cuming Microwave Products have no facilities for testing this improved outgassing.

Therefore-for a material to be used in a spacecraft , or where outgassing is an important criteria the Eccosorb SF type ordered should clearly indicate the type of SF as SF-XX-D to ensure correct post cure treatment.

ECCOSORB®SF and SF-D



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Availability:

Eccosorb SF is available in square sheets of 305 mm x 305 mm with varying thickness according to the desired resonant frequency.

Grades are designated by a suffix corresponding to the resonant frequency.

For example, Eccosorb SF-10.0 will be resonant at 10 GHz.

Eccosorb SF is produced for a specific frequency with a max. bandwidth of 500 MHz

On special order the material can also be supplied in customized shapes.

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.

As it is a homogeneous material, there is no distinction between its front and back face.

To obtain a strong bond of the absorber to the object, the metallic surface should be first thoroughly cleaned with a degreasing solvent.

The material can be bonded by use of an RTV silicone based adhesive in conjunction with a suitable primer.

Eccosorb SF can be readily cut with a sharp knife and template.

It is a very flexible material and will conform to mild curvatures.



Unit 44, 65-75 Captain Cook Drive Caringbah 2229 NSW Australia
P: 61 2 9531 7905



Safety Considerations: It is recommended to consult the EMERSON & CUMING MICROWAVE PRODUCTS product literature, including material safety data sheets, prior to use EMERSON & CUMING MICROWAVE PRODUCTS products. These may be obtained from your local sales office.

WARRANTY: Values shown are based on testing of laboratory test specimens and represent data that falls within the normal range of properties of the material. These values are not intended for use in establishing maximum, minimum or ranges of values for specific action purposes. Any determination of the suitability of the material or any use contemplated by the user and the manner of such use is the sole responsibility of the user who must assure that the material as subsequently processed meets the needs of this particular product or use. We hope the information given here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the user's consideration, investigation and verify action but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale INCLUDING THOSE LIMITING WARRANTIES AND REMEDIES which apply to all goods supplied by us. We assume no responsibility for the use of these statements, recommendations or suggestions nor do we intend them as a recommendation for any use which would infringe any patent or copyright.

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Emerson & Cuming Microwave Products N.V., Bell Telephonelaan 2B, B-2440 Geel, Belgium.

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