

ECCOSORB® FDS

Broad Frequency High-Loss Silicone Rubber Sheet

Material Characteristics

- Thin, flexible, electrically non-conductive silicone rubber sheet
- High magnetic and dielectric loss properties in the UHF and microwave regions
- Similar to ECCOSORB® GDS, only it retains high loss to much lower frequencies
- High dielectric strength and high insulation resistance
- Frequency range from 800 MHz - 18 GHz
- Impervious to moisture and can be subjected to moisture with no adverse effects
- Low out-gassing properties for space applications
- Can be easily cut with shears and fitted to compound curves

Applications

- ECCOSORB® FDS is primarily applied to attenuate surface currents and is not recommended as an absorber for specular reflections
- It can be used to modify antenna patterns, lower the Q of cavities, or reduce the RCS of objects.
- It has been used as gaskets in transmission lines
- ECCOSORB® FDS has also been used to line the inside surface of metal cylinders, which had one end open, and was found to be useful in reducing "head on" RCS
- It can be wrapped around current carrying conductors to function as a filter element for frequencies from RF to microwave
- Is effective where surface wave phenomena and multiple bounce contribute to RCS

Availability

- ECCOSORB® FDS is available in standard sheet sizes of 0.030" x 12" x 12" (0.076 cm x 30.5 cm x 30.5 cm)
- It can be supplied with a Pressure Sensitive Adhesive (PSA). Product designation denoting ECCOSORB® FDS with a PSA is ECCOSORB® FDS/SS6M
- ECCOSORB® FDS is available in other sizes and customer specified configurations and thicknesses upon request

Instructions for Use

- ECCOSORB® FDS can be bonded to itself to increase thickness or make larger sheets.

Electrical Properties

Frequency (GHz)	1.2	3.0	8.6
Dielectric Constant, K'	13.0	8.9	7.4
Dielectric Loss Tangent, tan δ_d	0.15	0.07	0.15
Magnetic Permeability, μ'	2.3	1.7	1.4
Magnetic Loss Tangent, tan δ_m	0.41	0.80	0.48
Attenuation, dB/cm	3	9	16
Relative Impedance, Z/Zo	0.4	0.5	0.5

Typical Properties

Service Temperature	Cryogenic to 350.6°F (177°C)
Weight, lbs/ft ² (kg/m ²)	0.4 (2)
Shore Durometer	60 A
Tensile Strength, psi (kg/cm ²)	>400 (28)
Thermal Expansion Coefficient per °C	55 x 10 ⁻⁶
Thermal Conductivity, (cal)(cm)/(sec)(cm ²)(°C) (BTU)(in)/(hr)(ft ²)(°F)	0.002 6
Volume Resistivity	>10 ¹¹ ohm-cm
Dielectric Strength, volts/mil (Kv/mm)	300 (11.8)
%TML	0.05
%CVCM	.02
Weight, lbs/ft ² (kg/m ²) with SS6M PSA	0.4 (1.95)