



Gore-Shield®

GS2100 EMI GASKETS

*Spaceflight and
Military Approved*

Summary

GORE-SHIELD® GS2100 EMI Gasket is a conductive, adhesive backed, EMI gasketing material that is moderately soft and is approved for spaceflight and military applications.

GORE-SHIELD® GS2100 EMI Gaskets can be supplied in die-cut part forms or in slit width rolls. Slit width material is ideal for manual “peel and stick” EMI gasketing applications.

GORE-SHIELD® GS2100 EMI Gaskets consist of a carbon-filled cellular PTFE matrix, a conductive pressure sensitive adhesive, and a PET carrier film (see Figure 1).

APPLICATIONS

EMI shielding for wireless infrastructure and microwave equipment, high frequency cable connectors, and telecommunications equipment in addition to high frequency portable electronic devices.

DESIGN CONSIDERATIONS

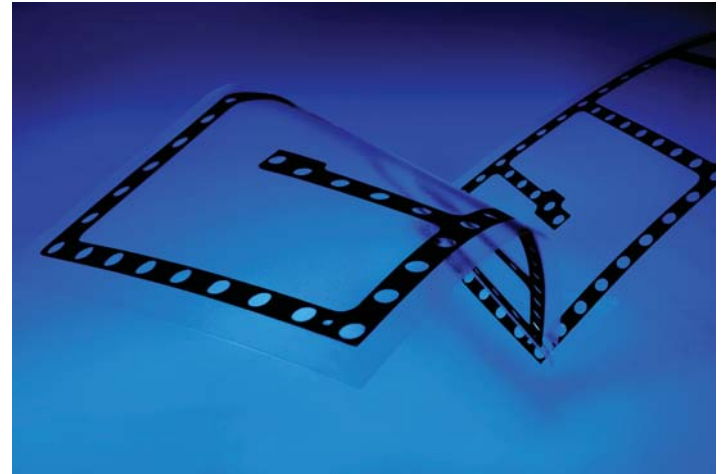
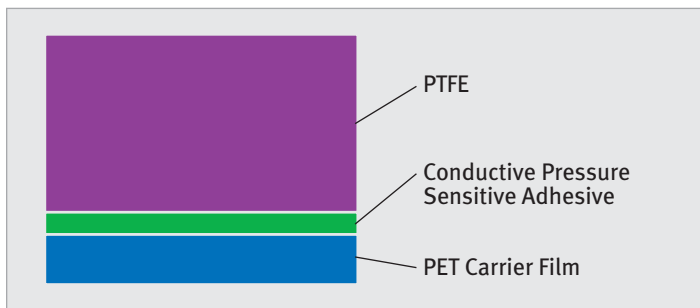
When optimizing a gasket shielding solution, consider the housing design as well as the EMI gasket performance.

Important considerations in the housing design include flatness, surface roughness, material type, rigidity, contact area, tolerance take-up, conductivity, fastener type, and fastener locations.

Key factors in an EMI gasket include softness, tolerance take-up, conductivity (DC resistance), and shielding effectiveness both before and after Accelerated Life Testing (ALT).

Gore application engineers can provide expert design assistance and rapid prototyping for your EMI shielding needs. Contact Gore for additional information.

FIGURE 1



FEATURES AND BENEFITS

- Global spaceflight and military approvals
- Proven shielding effectiveness
- Excellent reliability through Accelerated Life Testing (ALT)
- Flame retardant (UL-94 V-0)
- Broad temperature range (–45°C – 120°C)
- Maintains environmental seal

THICKNESS OPTIONS (NOMINAL)

| Inch | mm |
|-------|------|
| 0.010 | 0.25 |
| 0.020 | 0.51 |
| 0.040 | 1.02 |
| 0.060 | 1.52 |
| 0.080 | 2.03 |

RoHS STATUS

| RoHS Material* | Pass/Fail |
|-----------------------------------|-----------|
| Lead (Pb) Content | Pass |
| Cadmium (Cd) Content | Pass |
| Hexavalent Chromium (Cr6) Content | Pass |
| Mercury (Hg) Content | Pass |
| Bromine Compounds | Pass |

*W. L. Gore & Associates declares that we do not intentionally add substances listed in Directive 2002/95/EU to GORE-SHIELD® GS2100 EMI Gasket Material. Independent lab tests have been performed and results are available upon request.



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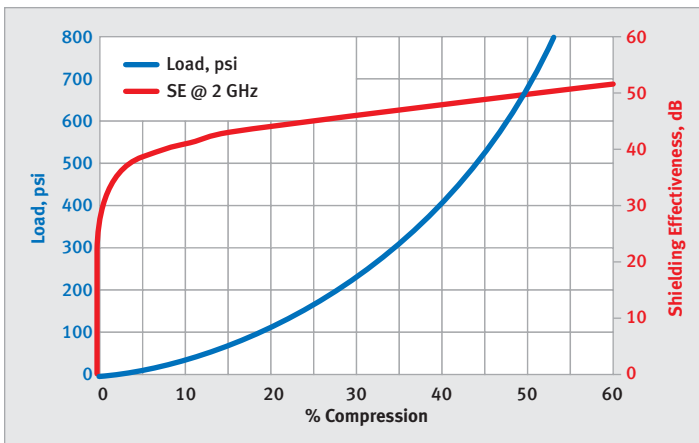
NOMINAL MATERIAL PROPERTIES

| | |
|----------------------------|--------------|
| Hardness | (Shore A) 45 |
| Density (gm/cc) | 0.34 |
| Fire Safety Rating (UL-94) | V-0 |

ELECTRICAL PROPERTIES

| | |
|---|------------------------------------|
| Volume Resistivity | 1.5 ohm-cm @ 500psi, Ag electrodes |
| Shielding Effectiveness (with adhesive) | >45dB @ 1GHz (ARP 1705 Method) |

LOAD AND SHIELDING EFFECTIVENESS VS. % COMPRESSION GS2100 WITH ADHESIVE



APPLICABLE SPECIFICATIONS AND STANDARDS

| ASTM Standard Test Methods | |
|----------------------------|---|
| F38 - Method B | Creep Relaxation |
| F37 | Sealability of Gasket Materials |
| D1622 | Specific Gravity |
| F104 | Contaminant Resistance |
| D395 | Compression Set |
| F36 | Compressibility and Recovery Gasket Materials |
| D2240 | Durometer Hardness |
| E595 | Outgassing in a Vacuum |

| Military Specifications and Standards | |
|--|---|
| DEF STAN 59-103 | EMI/EMP Gasket Components |
| DESC 92017 | Gaskets, EMI/RFI Shielding, Expanded PTFE |
| MIL-G-83528 | Gasketing Material, Conductive Elastomer, Shielding Gasket, EMI/RFI |
| MIL-STD-810 | Environmental Test Methods and Engineering Guidelines |
| MIL-STD-285 | Attenuation Measurements for Enclosures |
| Underwriter's Laboratory Inc. Test Methods | |
| UL-94 V-0 | Flammability Test for Materials |

| European Space Agency Specifications and Standards | |
|--|--|
| ESA PSS-01-702 | Total Mass Loss and Collected Volatile Condensable Materials from Outgassing in a Vacuum |
| NASA ASTM-E-595 | |
| British Standard Specifications | |
| BS 903 | Methods of Testing Vulcanized Rubber |
| BS 2011 | Environmental Testing |
| BS 3G 100 | General Requirements for Part 2, Section 3 Equipment for Use in Sub-Section 3.12 Aircraft, Environmental Conditions, Fluid Contamination |
| BS 5713 | UV Resistance Part 106.4, Method 3 |

PERFORMANCE AGAINST STANDARDS

General

Shipped material shall be capable of meeting the performance characteristics specified herein when tested against the following methods.

| Volume Resistivity | |
|--|--------------------------------|
| DESC 92017 | <1.5 ohm-cm (0.25mm thick) |
| MIL-G-83528 | 3.45 MPa (500 psi) load |
| Shielding Effectiveness | |
| DESC 92017 | "E" field – 100dB |
| MIL-G-83528 | 200MHz to 18GHz |
| Electromagnetic Discharge | |
| Charge <150 volts 25°C, 45% R.H. loss less than 100 volts within 0.5 sec | Pass |
| Electromagnetic Pulse (EMP) Survivability | |
| DEF STAN 59-103 | Pass |
| Reusability for EMI Seal | |
| MIL-G-83528 | Pass (>80db after 10 closings) |
| Temperature Operating Range | |
| Without Adhesive | -200°C – +200°C |
| With Adhesive | -40°C – +95°C |
| Density/Specific Gravity | |
| ASTM-D-1622-88 | 0.34g/cc |
| Corrosion Resistance | |
| DEF STAN 59-103 | Pass |
| Outgassing | |
| ASTM-E-595 and ESA PSS-01-702 | Pass (<1% mass loss) |
| Contaminant Resistance | |
| DESC 92017, MIL-G-83528, BS 3G 100-Part 2, and DEF STAN 59-103- Part 3/1 | Pass |
| Vibration Resistance | |
| DESC 92017 and MIL-G-83528 | Pass |
| Water Seal | |
| DEF STAN 59-103/Part 3 and IP 65 | Pass |
| Accelerated Life (Heat Aging) | |
| MIL-G-83528 and DEF STAN 59-103 - Part 3/1 | Pass |
| Mold Growth | |
| BS 2011 - Part 2-1J | None |

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