RAIL INTERIOR SOLUTIONS






EN 45545 MATERIAL SELECTION GUIDE

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INDUSTRIAL
SPECIALIST MATERIALS FOR DESIGN ENGINEERS

ROGERS
CORPORATION

BISCO® Silicones

Helping power, protect, connect our world™

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Rail Interior Solutions

Rogers' BISCO® product family offers a wide range of silicone based cellular foams and solids for use in various rail interior applications including seals, gaskets, floor isolation pads, sound barrier, anti-vibration/rattle and seating cushions.

The materials are offered in continuous rolled sheet form, enabling ease of fabrication whether slitting or die-cutting.

EN45545 Standard

- EN 45545-1 : Fire Protection of railway Vehicles : General Guidelines
- EN 45545-2 : Fire Protection of railway Vehicles : Requirements for Fire Behavior of materials and components
- The application material requirement is dependent on the train car classification: *Hazard Level Classification > Product Classification > Material Requirement Set*

BISCO Silicone Advantages

Long-Term Durability:

- Excellent dimensional stability
- Low stress relaxation
- Low compression set
- High/low temperature resistance

Design Reliability:
BISCO Silicones excellent durability and resistance to environment induced degradation (UV/Ozone/Chemical resistance) ensure components and systems perform as expected for the life of the car.

Passenger Safety:
BISCO Silicones are manufactured to comply with EN 45545 requirements without the use of restricted toxic substances. The fire-resistant properties are inherent to the homogenous cell structure, eliminating the need for fire-block layers.

Reducing Maintenance Costs:
By utilizing the BISCO MF1® silicone seat foam, transit authorities can have significant savings in maintenance costs and revenue lost to downtime as MF1 foams enable a longer lasting cushion life compared to commonly used urethane cushions.

Applications:

Interior/Exterior Gasket and Seals [R22 / R23]

- HVAC: Access panel seals, enclosure seals, roof mount seals, fan gaskets, anti-rattle seals and gap fillers.
- Lighting & Electronics: Light panel seals, LCD & display gasket, dust & moisture seal, electrical panel gasket, camera housing / lens seal
- BF-2000
- BF-1000
- HT-800

Sound Barrier [R1]

- Flexible acoustic barrier for ceiling and sidewall panels
- HT-200

Vibration Isolation Pad/Strips - Floor [R10]

- Vibration isolation pads/strips for floating floor systems
- HT-870
- HT-800
- L3-XX40
- HT-840

Seat Cushion [R18 / R19 / R21]

- Open-cell cushion
- MF1-35
- MF1-55
- MF1-75
- Offering longer cushion life and lasting passenger comfort

EN 45545 Requirement Set

	Seals / Gaskets / Insulation / Gap-Filling						Acoustic Barrier	Seat Cushion Foam	
				Vibration Isolation Pads (Floors)					
	BF-2000	**BF-1000**	**HT-870**	**HT-800**	**L3-XX40**	**HT-840**	**HT-200 FG**	**MF1-55**	
	ULTRA SOFT	EXTRA SOFT	SOFT	MEDIUM	MEDIUM FIRM	FIRM	SOLID ON FIBERGLASS	MEDIUM	
R1- Interiors Primary	---	---	---	0.79mm [HL1]	4mm [HL2]	---	0.7mm - 4mm [HL-2]	---	
R2- Interiors Limited Use	---	25.4mm [HL3]	---	0.79mm [HL2] 12.7mm [HL3]	4mm - 25mm [HL3]	1.6mm - 6.35mm [HL3]	0.7mm - 4mm [HL-3]	---	
R3- External Features	---	25.4mm [HL3]	---	0.79mm [HL2] 12.7mm [HL3]	4mm - 25mm [HL3]	1.6mm - 6.35mm [HL3]	0.7mm - 4mm [HL-3]	---	
R7- External Features	---	---	---	0.79mm [HL1]	4mm [HL2]	---	0.7mm - 4mm [HL-3]	---	
R8- External Roof Features	---	---	---	12.7mm [HL3]	---	---	---	---	
R9- Bogies Rubber Elements	---	---	2mm - 19mm [HL3]	2mm - 12.7mm [HL3]	---	---	---	---	
R10- Flooring Components	---	---	2mm - 19mm [HL3]	2mm - 12.7mm [HL3]	4mm - 25mm [HL3]	1.6mm - 6.35mm [HL3]	---	---	
R18- Full Seat	---	---	---	---	---	---	---	HL3 (Foam Only)	
R19- Staff Seats	---	---	---	---	---	---	---	HL3	
R21- Seal Components	---	---	---	---	---	---	---	HL3	
R22- Interior Seals	3.18mm - 12.7mm[HL3]	1.6mm - 25.4mm [HL2]	---	0.79mm - 12.7mm [HL3]	4mm - 25mm [HL3]	1.6mm - 6.35mm [HL3]	---	---	
R23- Exterior Seals	3.18mm - 12.7mm[HL3]	1.6mm - 25.4mm [HL2]	---	0.79mm - 12.7mm [HL3]	4mm - 25mm [HL3]	1.6mm - 6.35mm [HL3]	---	---	
Physical Properties (Typical Values)									**Test Standard**
Density, kg/m³ (lb/ft³)	160 (10)	192 (12)	240 (15)	352 (22)	352 (22)	449 (27)	See Data Sheet	112 (7)	---
Compression Force Deflection, kPa (psi)	10.3 (1.5)	20.7 (3)	27.6 (4)	62.0 (9)	89.6 (13)	151.7 (22)		6.2 (0.9)	ASTM D1056 (25% compression)
Tensile Strength, kPa (psi)	172 (25)	241 (35)	207 (30)	310 (45)	172 (25)	414 (60)		86 (12.5)	ASTM D412
Elongation, %	85	90	90	80	40	60		45	ASTM D412
Thermal Conductivity, Wm/k	---	---	---	---	---	---	---	0.05	ASTM C518
Compression Set, %	5								ASTM D1056 (100°C @ 50% compression)
Water Absorption	5								Rogers (24 hrs @ 23°C)
Temperature Range, °C	-55 to 200								Rogers Internal / ASTM D1056

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World Class Performance

Rogers Corporation (NYSE:ROG) is a global leader in engineered materials to power, protect, and connect our world. With more than 180 years of materials science experience, Rogers delivers high-performance solutions that enable clean energy, internet connectivity, and safety and protection applications, as well as other technologies where reliability is critical. Rogers delivers Power Electronics Solutions for energy-efficient motor drives, vehicle electrification and alternative energy; Elastomeric Material Solutions for sealing, vibration management and impact protection in mobile devices, transportation interiors, industrial equipment and performance apparel; and Advanced Connectivity Solutions for wireless infrastructure, automotive safety and radar systems. Headquartered in Arizona (USA), Rogers operates manufacturing facilities in the United States, China, Germany, Belgium, Hungary, and South Korea, with joint ventures and sales offices worldwide.

For more information, **please contact Mason Grogan Industrial.**

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The Quality Management System at the Carol Stream facility is registered to ISO 9001:2008 and AS9100, Rev. B by the Underwriters Laboratories (File # A-5857).

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