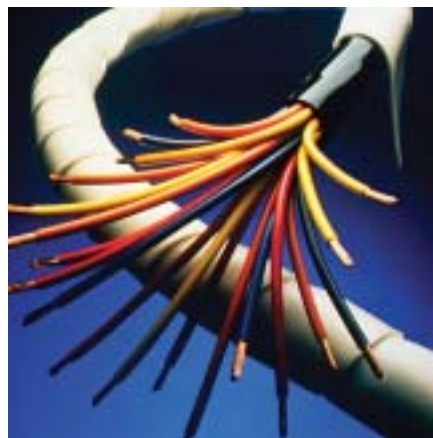




BISCO® Silicones

Material Selection Guide





Markets

Aircraft

Mass Transit & Automotive

Telecommunications &
Electrical Enclosures

Computers & Electronics

Exterior Lighting

Medical Devices

Wire, Cable & Fiberoptics

Manufacturing Equipment

Applications

Environmental Seals

Outdoor Electrical Gaskets

EMI/RFI Shielding Gaskets

Chip Package or Battery Cushions

Low Flame, Smoke & Toxicity Seals
& Gap Fillers

Automotive Heat Shields

HID (High Intensity Discharge)
Lighting Seals

High- and Low-Closure Force Gaskets

UV- and Ozone-Resistant
Environmental Seals

Medical Device Gaskets & Seals

Moisture-Resistant Wrap

Circuit Material Press Pads

Foam Core for
EMI/RFI Shielding Gaskets



The world runs better with Rogers.

Rogers BISCO® Silicones offer a broad range of design solutions for gasketing, sealing, gap filling and shielding. BISCO Silicones are part of the Rogers High Performance Foams family of products, which also include PORON® Urethanes and Polyolefin Foams.

Superior Flame Resistance

Full line of UL 94 V-0 and HF-1 rated cellular silicones

Low Flame, Smoke and Toxicity

Meets most stringent global standards for flame resistance, flame spread, optical smoke density, and toxic gas emissions

Extensive Temperature Range

Excellent performance at extremely low or high temperatures

Unsurpassed Compression Set Resistance

Durable long-term resilience and service life in dynamic applications

Excellent Environmental Resistance

Low water absorption
Excellent resistance to UV light, ozone, stain, and corrosion

Easy to Fabricate

Die-cuts cleanly
Available with or without adhesive
Available in continuous rolls

Broad Product Offering

Wide range of densities, thicknesses, and colors

Product Consistency

Quality manufacturing provides excellent thickness tolerances

Quality Service and Support

All products are supported by knowledgeable Rogers Sales Engineers, Technical Service, and Customer Service Representatives

Also Available

Excellent Shielding Effectiveness

EC-2000 material provides soft EMI gasket alternatives with 80 to 120 dB attenuation



Cellular Silicones

	Typical Physical Properties				Flammability & Outgassing				Temperature Resistance				Electrical & Thermal Properties									
	Density, lb/ft ³ (kg/m ³) ASTM F 1315	Compression Force Deflection, psi (kpa) @ 25% Deflection, ASTM D 1056	Compression Set @ 158°F (70°C) ASTM D 1056	Compression Set @ 212°F (100°C) ASTM D 1056	Tensile Strength, psi (kpa) ASTM D 412	Elongation, % ASTM D 412	Flame Resistance A UL 94, File #E83987	Flame Spread Index (I _s) ASTM E 162	Limiting Oxygen Index (LOI) ASTM D 2883	Smoke Density (D _s) @ 4.0 minutes C ASTM E 662	Toxic Gas Emissions Rating SMP-800-C & BSS 7239	Weight Loss After 168 Hours @ 275°F (135°C), ASTM D 573	Recommended Constant Use, °F (°C), SAE J-2236	Recommended Intermittent Use, max., °F (°C) Roger's Internal	Low Temperature Embrittlement, °F (°C), ASTM D 746 (B)	Hot Flex @ 446°F (230°C), ASTM D 573	Dielectric Constant ASTM D 149	Dielectric Strength, Volts/mil ASTM D 150	Dry Arc Resistance, Seconds ASTM D 495	Volume Resistivity, Ohm-cm ASTM D 257	Thermal Conductivity, BTU in/hr/ft ² °F (W/m °K), ASTM C 518	
OPEN CELL	12 (192)	1-5 (7-35)	< 1%	< 5%	35 (241)	90	HF-1 & V-0	< 25	34%	< 50	< 20	Pass	1.20%	-67 to 392 (-55 to 200)	482 (250)	-67 (-55)	Pass	1.34	89	90	10 ¹⁴	0.39 (0.06)
	15 (240)	2-7 (14-48)	< 1%	< 5%	40 (276)	90	HF-1 & V-0	< 25	38%	< 50	< 20	Pass	1.05%	-67 to 392 (-55 to 200)	482 (250)	-67 (-55)	Pass	1.38	90	91	10 ¹⁴	0.49 (0.07)
	20 (320)	6-14 (41-97)	< 1%	< 5%	45 (310)	80	HF-1 & V-0	< 25	40%	< 50	< 20	Pass	0.90%	-67 to 392 (-55 to 200)	482 (250)	-67 (-55)	Pass	1.42	91	92	10 ¹⁴	0.63 (0.09)
CLOSED CELL	24 (384)	12-20 (83-138)	< 1%	< 5%	60 (414)	65	HF-1 & V-0	< 25	42%	< 50	< 20	Pass	0.80%	-67 to 392 (-55 to 200)	482 (250)	-67 (-55)	Pass	1.50	93	96	10 ¹⁴	0.75 (0.11)
	28 (449)	16-26 (110-179)	< 1%	< 5%	70 (483)	55	HF-1 & V-0	< 25	44%	< 50	< 20	Pass	0.70%	-67 to 392 (-55 to 200)	482 (250)	-67 (-55)	Pass	1.58	95	98	10 ¹⁴	0.84 (0.12)
FPC Properties (Resists burn-through to 1900°F (1038°C))																						
FIRE BARRIER	Density ASTM F 1315		Flame Spread (I _s) ASTM E 162		Smoke Density – Flaming D _s - 4 minutes ASTM E 662				Smoke Density – Flaming D _s - 1.5 minutes ASTM E 662													
	32 pcf		< 5		< 75				< 25													

Environmental Properties										Availability			Specifications Available	
Gasketing & Sealing Rating UL 157, JMLU2 listed, File #MH13898	Water Absorption ASTM D 471	UV Resistance SAE J 1960	Ozone Effect Rating ASTM D 1171	Stain Resistance ASTM D 925(A)	Corrosion Resistance AMS-3568	Available Thickness Range, inches (mm)	Standard Colors	Standard Width, inches (mm)	Meets FDA Regulation (21 CFR 177.2600)	Other				
N/A	3.50%	No Degradation	0 (No Cracks)	No Stain	Pass	1/16 to 1 (1.6 to 25.4)	White B	36 (914)	White, Gray only	BMS 1-68, DAN 1226				
Pass	2.50%	No Degradation	0 (No Cracks)	No Stain	Pass	1/16 to 1/2 (1.6 to 12.7)	Black, Red	36 (914)	N/A	N/A				
Pass	1.40%	No Degradation	0 (No Cracks)	No Stain	Pass	1/32 to 1/2 (0.8 to 12.7)	Red Gray, Black	36 (914)	Gray only	AMS-3195 (S)				
Pass	0.80%	No Degradation	0 (No Cracks)	No Stain	Pass	1/32 to 1/4 (0.8 to 6.4)	Gray	36 (914)	Gray only	AMS-3196 (F)				
N/A	0.20%	No Degradation	0 (No Cracks)	No Stain	Pass	1/16 to 1/4 (1.6 to 6.4)	Gray	36 (914)	N/A	N/A				
Dielectric Breakdown ASTM D 149-90					Dielectric Strength ASTM D 149-90			Arc Resistance ASTM D 495-89		FPC				
1100 volts					9 volts/mil			+ 1800 seconds						

A Underwriters Laboratories limits the ratings to specific colors and thicknesses. Consult www.ul.com for more details.
B BF-1000 Gray color is standard in 1/16" (1.6mm), 1/8" (3.2mm), 1/4" (6.4mm) and 1/2" (12.7mm) thicknesses.
C ASTM limits smoke density ratings to specific thicknesses. Ask your Customer Service Representative for details.

Testing methods appear in purple.
Notes: All products available with Acrylic or Silicone Pressure Sensitive Adhesive. Properties and specifications listed apply to BISCO Silicone material prior to adhesive lamination only.

Solid & Specialty Silicones

	Typical Physical Properties					Temperature Resistance			Electrical & Thermal Properties			
	Durometer, Shore "A" (pts) ASTM D 2240	Compression Set, %, 70 hr @ 302°F (150°C) ASTM D 395(B)	Tensile Strength, psi (MPa) ASTM D 412	Elongation, % ASTM D 412	Tear Strength, pli (kN/m) ASTM D 624	Recommended Constant Use °F (°C) SAE J-2236	Recommended Intermittent Use, max., °F (°C) Rogers Internal	Low Temperature Embrittlement, °F (°C) ASTM D 2137	Dielectric Constant ASTM D 150	Dielectric Strength, Volts/mil ASTM D 149	Volume Resistivity, Ohm-cm ASTM D 257	Thermal Conductivity, BTU in/hr-ft ² -°F (W/m °K) ASTM C 518
CALENDERED RUBBER	40-70	20-25	825-1150 (5.7-7.9)	200-350	50-90 (8.8-15.8)	-80 to 425 (-62 to 218)	500 (260)	-80 (-62)	3.0-3.2	400	10 ¹⁴	1.7-2.1 (0.25-0.30)
	75	25	300 (0.8) D	N/A	N/A	-80 to 425 (-62 to 218)	500 (260)	-80 (-62)	3.2	400	10 ¹⁴	2.0 (0.29)
LIQUID SILICONE RUBBER	10-40	30-35	250-800 (1.7-5.5)	250-650	25-75 (4.4-13.1)	-80 to 425 (-62 to 218)	500 (260)	-80 (-62)	3.0	400 to 500	10 ¹⁴	1.5 (0.21)
HT-6360 Properties												
LOW FLAME, SMOKE & TOXICITY SOLID	65	-	300 (2.0)	175	50 (8.8)	Limiting Oxygen Index (LOI) ASTM D 2863	Flame Spread (I _S) ASTM E 162	Smoke Density – Flaming D _S 4 minutes ASTM E 662	Smoke Density – Flaming D _S 1.5 minutes ASTM E 662			
						55	<10	<30	<5			
HT-200 Properties												
ACOUSTIC BARRIER	Thickness		Flame Spread (I _S) ASTM E 162		Smoke Density – Flaming D _S 4 minutes ASTM E 662		Smoke Density – Flaming D _S 1.5 minutes ASTM E 662					
	0.1"		< 15		< 75		< 5					

D Data relevant to the breaking strength of the fiberglass only, and measured in pli (MPa/cm) using ASTM D 751 cut strip method.
E White, Black and Gray Formulations Available.
F Series includes HT-6210, HT-6220, HT-6135, and HT-6240.
G AMS 3220 available thicknesses are 0.063" (1.6mm), 0.094" (2.39mm) and 0.125" (3.18mm).

	Environmental								Availability		Specs Avail.	
	Effects of Dry Heat Aging				Effects of Oil Immersion ASTM #1 Oil				Available Thickness Range, inches (mm)	Standard Colors	Standard Width, inches (mm)	Specification A-A-59588 (formerly ZZ-R-765) AMS Specification
Change in Hardness, Shore "A" (pts), 70 hr. @ 437°F (225°C) ASTM D 573	Change in Tensile Strength, %, 70 hr. @ 437°F (225°C) ASTM D 573	Change in Elongation, %, 70 hr. @ 437°F (225°C) ASTM D 573	Change in Hardness, Shore "A" (pts), 70 hr. @ 302°F (150°C) ASTM D 471	Change in Tensile Strength, %, 70 hr. @ 302°F (150°C) ASTM D 471	Change in Elongation, %, 70 hr. @ 302°F (150°C) ASTM D 471	Change in Volume, %, 70 hr. @ 302°F (150°C) ASTM D 471	Volume Change from Water Immersion % 70 hr. @ 212°F (100°C) ASTM D 471					
±5	-15	-35	-10 to +5	-10	-15	+5	+5 to +10	0.020 to 0.250 (0.5 to 6.4)	Red E	36 (915)	40-70 3302 3303 3304	HT-1200 Series
-5 to +10	-20 D	N/A	-10 to +5	-20 D	N/A	+10	+5	0.031 to 0.125 (0.8 to 3.2)	Red E	36 (915)	N/A 3320 G	HT-1500 Series
±5	-15	-30 to -40	±5	-20 to -35	-20 to -40	+10 to +15	+5	0.010 to 0.125 (0.3 to 3.2)	Various F	36 (915)	N/A N/A	HT-6200 Series F
Toxic Gas Production Bombardier SMP-800-C			Flame Resistance UL 94 V-0 File # QMFZ2.E83967			Standard Color			HT-6360			
Meets			≥0.020"			Black						
Areal Density (psf) ASTM E 90				Typical Sound Transmission Loss Rating ASTM E 90				HT-200				
1.50 psf				29								
1.00 psf				27								
0.75 psf				25								
0.50 psf				22								

Testing methods appear in purple.
Notes: All products available with Acrylic or Silicone Pressure Sensitive Adhesive. Properties and specifications listed apply to BISCO Silicone material prior to adhesive lamination only.



High Performance Foams Division

BISCO® Silicones, Polyolefin Foams
Carol Stream, IL, USA

Tel: 630.784.6200

Fax: 630.784.6201

Cust. Orders Toll Free: 800.237.2068

Samples, Literature, Tech Support

Toll Free: 800.935.2940

High Performance Foams Division

PORON® Urethanes
Woodstock, CT, USA

Tel: 860.928.3622

Fax: 860.928.7843

Toll Free: 800.755.6766



BISCO® Silicone Products Manufactured
at the Carol Stream Facility are Registered
to ISO 9001:2000 Certificate No. A-5857.

www.rogerscorporation.com

Sales

Rogers Corporation

Rogers, CT, USA

Tel: 860.774.9605

Fax: 860.779.5509

Rogers Southeast Asia Inc.

Hong Kong, SAR, PRC

Tel: +852.2549.7806

Fax: +852.2549.8615

Rogers N.V.

Gent, Belgium

Tel: +32 9 2353611

Fax: +32 9 2353658

Rogers Korea Inc.

Seoul, ROK

Tel: +82.31.716.6112

Fax: +82.31.716.6208

Rogers Taiwan Inc.

Taipei, ROC

Tel: +886.2.8660.9056

Fax: +886.2.8660.9057

Rogers China Inc.

Guangzhou, PRC

Tel: +86.20.8363.4612

Fax: +86.20.8363.4490

Rogers Technologies (Singapore) Inc.

Singapore

Tel: +65.6747.3521

Fax: +65.6747.7425

Rogers Technologies (Suzhou) Co., Ltd.

Suzhou, PRC

Tel: +86.512.6258.8000

Fax: +86.512.6258.1278

Rogers Japan Inc.

Tokyo, Japan

Tel: +81.3.5200.2700

Fax: +81.3.5200.0571

The information contained in this Material Selection Guide is intended to assist you in designing with Rogers BISCO Silicone Foam. It is not intended to and does not create any warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose or that the results shown in this Material Selection Guide will be achieved by a user for a particular purpose. The user should determine the suitability of Rogers BISCO Silicone Foam for each application.

BISCO and PORON are licensed trademarks of Rogers Corporation.

© 2003 Rogers Corporation, Printed in USA

3050-0703-7.5AG, Publication #180-016