

PORON® Urethane Foams

Material Selection Guide





Markets

- Communications
- Computers
- Transportation
- Electronics
- Appliances
- Medical Devices
- Industrial



Applications

- LCD Gaskets
- Battery Pressure Pads
- Speaker Gaskets
- Environmental Seals
- Spacers
- Motor Mounts
- Vibration Damping Gaskets
- Springs
- Instrument Cluster Gaskets
- Cup Holders
- Air Filter Gaskets
- Appliance Foot Pads
- EMI/RFI Shielding



The world runs better with Rogers.

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

Excellent Compression-set Resistance

Durable, long-term performance for gasketing, sealing, and cushioning

Energy Absorption

High resiliency, good vibration damping and impact attenuation

Low Outgassing

No plasticizers to migrate, non-corrosive to metal, environmentally safe and clean

Broad Temperature Range

Excellent performance from -40°C to 90°C

Inherently Flame Retardant

Many of the materials meet flammability requirements of UL HBF and MVSS 302

Good Chemical Resistance

Exhibits resistance to corrosion, ozone and UV exposure

Easy to Fabricate

Die-cuts cleanly and readily accepts adhesive without surface preparation

Product Consistency

Quality manufacturing, material cast to tight tolerances and precise variations of density and internal strength

Broad Product Offering

Wide range of firmness, density, thickness, and color options available

Quality Service

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



Typical Physical Properties										Electrical & Thermal						
Density, lb./ft ³ (kg./m ³), Tolerance, % ASTM D 3574-95 Test A	Compression Force Deflection, Range psi (kPa), Typical psi (kPa) @ 25% Deflection	Hardness, Durometer, Shore "C", Shore "A" , ASTM D 2240-97	Compression Set, % max, ASTM D 1667-76 Test D @ 73°F (23°C)	Compression Set, % max, Test J / Test D after autoclave 5 hrs. @ 158°F (70°C)	Dimensional Stability, % max change 22 hrs. @ 176°F (80°C) in a forced-air oven	Tensile Strength, Min. psi (kPa), Typical psi (kPa)	Tensile Elongation, %, Min., Typical	Tear Strength, Min. pli (kN/m), Typical pli (kN/m)	Dielectric Constant, K(DK), ASTM D 150 measurements @ 72°F (22°C) relative humidity 50% for 24 hours.	Dielectric Strength, volts/mil, ASTM D 149-97a	Dissipation Factor, tan D ("DF"), ASTM D 150-98	Volume Resistivity, ohm-cm, ASTM D 257-99	Surface Resistivity, ohm/sq., ASTM D 257-99	Thermal Conductivity, W/m-C (BTU-in/hr-ft-F) ASTM C 518-98	Coefficient of Thermal Expansion in./in./°C	
15 (240) ± 10	0.3-3.5 (2-24) 2 (14)	2	2	10	5	± 5	15 (103) 30 (207)	120 206	4 (0.7) 5 (0.9)	1.48	50	0.04	8 x 10 ¹¹	10 x 10 ¹¹	0.083 (0.58)	2.8-3.1 x 10 ⁻⁴
15 (240) ± 10	1-5 (7-35) 3 (21)	< 3	< 3				20 (138) 30 (207)	100 160	1 (0.2) 5 (0.9)							
20 (320) ± 10	3-8 (21-55) 5 (35)	8	2	10	5	± 1	30 (207) 50 (346)	100 155	3 (0.5) 7 (1.2)	1.75	50	0.05	3 x 10 ¹¹	6 x 10 ¹¹	0.076 (0.53)	2.3-3.1 x 10 ⁻⁴
25 (400) ± 10	5-12 (35-83) 9 (62)	16					35 (242) 70 (484)	100 150	4 (0.7) 10 (1.8)							
15 (240) ± 10	4-8 (27-55) 6 (41)	12					40 (276) 70 (484)	100 160	3 (0.5) 9 (1.6)							
20 (320) ± 10	7-13 (48-90) 11 (76)	17	5	10	5	± 1	75 (518) 95 (657)	100 155	5 (0.9) 12 (2.1)	1.71	50	0.05	1 x 10 ¹²	2 x 10 ¹²	0.086 (0.60)	2.3-3.1 x 10 ⁻⁴
30* (480) ± 10	15-40 (104-276) 25 (173)	34					120 (829) 170 (1175)	100 145	12 (2.1) 17 (3.0)							
15 (240) ± 10	8-14 (55-97) 10 (69)	18					80 (553) 95 (657)	100 140	6 (1.1) 12 (2.1)							
20 (320) ± 10	13-23 (90-159) 17 (117)	24	5	10	5	± 1	120 (829) 145 (1003)	100 135	10 (1.8) 16 (2.8)	1.63	50	0.05	2 x 10 ¹²	7 x 10 ¹²	0.090 (0.63)	2.3-3.1 x 10 ⁻⁴
30 (480) ± 10	30-60 (207-415) 39 (269)	55					200 (1382) 250 (1729)	90 130	13 (2.3) 24 (4.2)							
15 (240) ± 10	18-50 (124-345) 36 (249)	42					135 (931) 170 (1175)	50 75	12 (2.1) 19 (3.3)							
20 (320) ± 10	35-85 (241-586) 62 (428)	55	5	10	10	± 5	200 (1382) 275 (1901)	45 75	17 (3.0) 25 (4.4)	1.60	50	0.05	7 x 10 ¹²	3 x 10 ¹²	0.088 (0.61)	2.3-3.1 x 10 ⁻⁴
25 (400) ± 10	50-130 (345-896) 93 (643)	63					250 (1724) 380 (2627)	50 75	19 (3.3) 30 (5.3)							

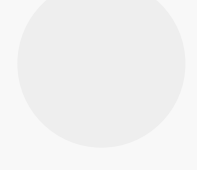
Testing Methods Appear in Green

Notes: All metric conversions are approximate. Additional technical services are available.

Temperature Resistance			Flammability & Outgassing				Environmental				Avail.						
Temperature Resistance, Constant Use, max., SAE J-2236	Temperature Resistance, Intermittent Use, max., ASTM D 746-98	Temperature Resistance, Embrittlement MIL-P-12420 D 1991 @ -40 F (-40 C)	Flame Resistance, UL HB (File E20305) (Pass,)	MVSS 302 (Pass,)	Fogging, SAE J-1756 3 hrs @ 212 F (100°C)	Outgassing, Total Mass Loss, (TML), % (CVCM), %	Outgassing, Collected Volatile Condensable Materials, ASTM E 595 24 hrs @ 237 F (125°C) @ < 7x10 ⁻³ Pa	Gasketing and Sealing, UL-JMST2 (Consisting of UL50 and UL508), % weight gain, typical, AMS 3668-95	Water Absorption, High Humidity Exposure, % weight gain, typical, ASTM D 570-95	Ozone Resistance, ASTM G 53-98	Corrosion Resistance, GM 4486P-95	Thickness, inches (mm)	Standard Color (Code)	Tolerance, %			
194°F (90°C)	250°F (121°C)	-4°F (-20°C)	-	Pass	1.73	0.14	0.71	File MH15464	2	34	-	-	-	0.125 - 0.500 (3.18 - 12.70) ± 10%	Black (04)	4790-92 Extra Soft-Slow Rebound	
194°F (90°C)	250°F (121°C)	-60°F (-51°C)	Pass	0.093" 0.062" 0.093"	Pass	1	0.1	0.3	File MH15464 File 188149*	2	9	Good	Pass	Pass	0.188 - 0.500 (4.78 - 12.70) ± 10%	Black (04)	4701-30 Very Soft
194°F (90°C)	250°F (121°C)	-40°F (-40°C)	Pass	0.188" 0.188" 0.188"	Pass	0.7	0.04	0.3	File MH15464 File 188149	2	19	Good	Pass	Pass	0.188 - 0.500 (4.78 - 12.70) ± 10%	Black (04)	4701-40 Soft
194°F (90°C)	250°F (121°C)	-40°F (-40°C)	Pass	0.062" 0.062" 0.062"	Pass	0.8	0.04	0.3	File MH15464 File 188149**	2	8	Good	Pass	Pass	0.062 - 0.125 (1.57 - 3.18) ± 10%	Black (04)	4701-50 Firm
158°F (70°C)	250°F (121°C)	3°F (-16°C)	Pass	0.062" 0.062" 0.062"	Pass	0.6	0.05	0.5	File MH15464 File 188149	2	20	Good	Pass	-	0.031 - 0.188 (0.79 - 4.78) ± 10%	Black (04)	4701-60 Very Firm
				0.062" 0.062" 0.062"		0.7	0.03	0.6		6				0.031 - 0.093 (0.79 - 2.36) ± 15%			

Notes: All products exhibit good Mildew/Bacteria Resistance, ASTM G 21-96
 All products exhibit no Skin Contact Irritation, Primary Skin Irritation Test (FHSA)
 All products exhibit no Staining, ASTM D 925
 *Material tested in Azure **Material tested in Gray

Unsupported Products



Typical Physical Properties										Electrical & Thermal					
Density, lb./ft. ³ (kg / m ³) ASTM D 3574-95 Test A	Compression Force Deflection, Range psi (kPa), Typical psi (kPa), Measured @ 25% Deflection	Hardness, Durometer, Shore "O"	Compression Set, % max. ASTM D 1667-76 Test D @ 73°F (23°C)	Compression Set, % max. ASTM D 3574-95 Test D @ 158°F (70°C)	Dimensional Stability, % max., ASTM D 3574-95 22 hrs. @ 176°F (80°C) in a forced-air oven	Tensile Strength, Min. psi (kPa), Typical psi (kPa) ASTM D 3574-75 Test E	Tensile Elongation, %, Min., Typical ASTM D 3574-95 Test E	Tear Strength, Min. pli (kN/m), Typical pli (kN/m) ASTM D 264-91 Die C	Dielectric Constant, K' (DK'), ASTM D 150 measurements @ 127°F (52°C) relative humidity 50% for 24 hours.	Dielectric Strength, volts/mil, ASTM D 149-97a	Dispipation Factor, tan D (DF), ASTM D 150-98	Volume Resistivity, ohm-cm, ASTM D 257-99	Surface Resistivity, ohm/sq., ASTM D 257-99	Thermal Conductivity, W/m-C (BTU-in/hr-ft ² -F) ASTM C 518-96	Coefficient of Thermal Expansion in./in./°C
15 (240) ± 10	0.3-3.5 (2-24) 1.7 (12)	2	-	-	-	-	-	1.48	50	0.04	8 x 10 ¹¹	10 x 10 ¹¹	0.083 (0.58)	2.3-3.1 x 10 ⁻⁴	
20 (320) ± 10	1-5 (7-35) 3.2 (22)	-	2	10	-	-	-	-	-	-	-	-	-	-	
25 (400) ± 10	1.25-8.5 (8-58) 5.3 (37)	-	-	-	-	-	-	-	-	-	-	-	-	-	
20 (320) ± 10	3-8 (21-55) 5.0 (34)	8	-	-	-	-	-	1.75	50	0.05	3.1 x 10 ¹¹	5.9 x 10 ¹¹	0.076 (0.53)	2.3-3.1 x 10 ⁻⁴	
25 (400) ± 10	5-12 (35-83) 8.4 (58)	16	4	10	-	-	-	-	-	-	-	-	-	-	
30 (480) ± 10	15-45 (103-310) 32 (221)	55	5	10	-	-	-	1.63	50	0.05	2 x 10 ¹²	7 x 10 ¹²	0.090 (0.63)	2.3-3.1 x 10 ⁻⁴	
15 (240) ± 10	5-11 (35-76) 9.3 (64)	11	-	-	-	-	-	-	-	-	-	-	-	-	
20 (320) ± 10	10-17 (69-117) 15 (103)	19	5 ¹	10 ¹	5 ¹	± 2	40 (276) 67 (462)	100 149	6 (1.1) 10 (1.8)	1.71	50	0.05	1 x 10 ¹²	2 x 10 ¹²	
30 (480) ± 10	15-40 (103-276) 28 (193)	31	-	-	-	-	90 (620) 94 (648)	100 140	8 (1.4) 13 (2.3)	-	-	-	-	-	
30 (480) ± 10	15-45 (103-310) 32 (221)	55	5	10	5	± 1	120 (827) 149 (1027)	100 136	15 (2.6) 18 (3.2)	-	-	-	-	-	
30 (480) ± 10	15-45 (103-310) 32 (221)	55	5	10	5	± 1	160 (1106) 238 (1641)	90 118	9 (1.6) 25 (4.4)	1.63	50	0.05	2 x 10 ¹²	7 x 10 ¹²	

Testing Methods Appear in Green

- Notes:** 1. Compression Set, % maximum, after 24 hour recovery
2. PORON Cellular Urethane material is supported by being directly cast onto 2 mil polyester film
All metric conversions are approximate. Additional technical services are available.

Temperature Resistance		Flammability & Outgassing			Environmental			Avail.		PET Film									
Temperature Resistance, Recommended Constant Use, max., SAE J-2236	Temperature Resistance, Recommended Intermittent Use, max., ASTM D 746-98	Temperature Resistance, Embrittlement MIL-P-12420D / 1991 @ -40°F (-40°C)	Flame Resistance, Cold Flexibility MVSS 302 (Pass,)	Fogging, SAE J-1756 3 hrs @ 212°F (100°C) 12/94 ASTM E 595 24 hrs @ 257°F (125°C) @ < 7x10 ⁻³ Pa	Outgassing, Total Mass Loss (TML), % (CYM), % ASTM E 595 24 hrs @ 257°F (125°C) @ < 7x10 ⁻³ Pa	Outgassing, Collected Volatile Condensable Materials ASTM E 595 24 hrs @ 257°F (125°C) @ < 7x10 ⁻³ Pa	Gaskeing and Sealing, UL JMST2 (Consisting of UL50 and UL508) % weight gain, typical	Water Absorption, High Humidity Exposure % weight gain, typical, AMS 3568-95	UV Resistance, ASTM D 570-95	Ozone Resistance, ASTM G 53-96	Corrosion Resistance, GM 4488P-95	Thickness, inches (mm), Tolerance, %	Standard Color (Code)	Density, g/cm ³ , ASTM D 1505	Tensile Strength MD, psi (kg/cm ²), ASTM D 882	Shrinkage MD, % (TD), 39 min. @ 150°C	Yield Strength (F5), psi (kg/cm ²), ASTM D 882	Coefficient of Friction A/B, (Kinetic), ASTM D 1894	
158°F (70°C)	250°F (121°C)	0°F (-18°C)	Pass	1.73	0.14	0.71	-	2	23	-	-	0.120 (3.05) ± 10%	Black (04)	1,395	30,000 (2,110)	150	1.2 (0.0)	15,000 (1,050)	0.40
250°F (121°C)	0°F (-18°C)	-10°F (-12°C)	Pass	1.63	0.29	0.49	-	2	14	-	-	0.081 (2.06) ± 10%	Black (04)	1,395	30,000 (2,110)	150	1.2 (0.0)	15,000 (1,050)	0.40
158°F (70°C)	250°F (121°C)	-60°F (-51°C)	Pass	1.44	0.27	0.44	File MH15464	2	9	Good	Pass	0.021 - 0.041 (0.53 - 1.04) ± 15%	Black (04)	1,395	30,000 (2,110)	150	1.2 (0.0)	15,000 (1,050)	0.40
158°F (70°C)	250°F (121°C)	-40°F (-40°C)	Pass	1.3	0.2	0.6	File MH15464	2	14	Good	Pass	0.064 - 0.095 (1.63 - 2.36) ± 10%	Black (04)	1,395	30,000 (2,110)	150	1.2 (0.0)	15,000 (1,050)	0.40
158°F (70°C)	250°F (121°C)	-40°F (-40°C)	Pass	0.9	0.06	0.43	File MH15464	2	5	Good	Pass	0.021 - 0.047 (0.53 - 1.19) ± 15%	Black (04)	1,395	30,000 (2,110)	150	1.2 (0.0)	15,000 (1,050)	0.40
194°F (90°C)	250°F (121°C)	-	Pass	0.197*	0.84	0.05	0.4	File MH15464	3	15	-	0.188 - 0.500 (4.78 - 12.7) ± 10%	Black (04)	-	-	-	-	-	-
194°F (90°C)	250°F (121°C)	-	Pass	0.97	0.04	0.46	File MH15464	3	13	-	-	0.062 - 0.125 (1.57 - 3.18) ± 10%	Black (04)	-	-	-	-	-	-
194°F (90°C)	250°F (121°C)	-40°F (-40°C)	Pass	1.0	0.06	0.65	File MH15464	2	6	Good	Pass	0.031 - 0.045 (0.79 - 1.14) ± 20%	Black (04)	-	-	-	-	-	-
194°F (90°C)	250°F (121°C)	-40°F (-40°C)	Pass	0.045*	0.9	0.06	0.43	File MH15464	2	5	Good	Pass	0.017 - 0.020 (0.43 - 0.50) ± 0.003in	Black (04)	-	-	-	-	-

- Notes:** All products exhibit good Mildew/Bacteria Resistance, ASTM G 21-96
All products exhibit no Skin Contact Irritation, Primary Skin Irritation Test (FHSA)
All products exhibit no Staining, ASTM D 925

Supported Products²

4790-92
Extra
Soft-Slow
Rebound

4701-30
Very Soft

4701-50
Firm

Additional Offerings

4701-41
Soft –
Enhanced
Sealability

4701-50
Firm–Thin
as Cast



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The Woodstock, CT Facility
Is Registered to ISO 9001:2000
Certificate No. A-3843

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The information contained in this Material Selection Guide is intended to assist you in designing with Rogers PORON Urethane. 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 PORON Urethane for each application.