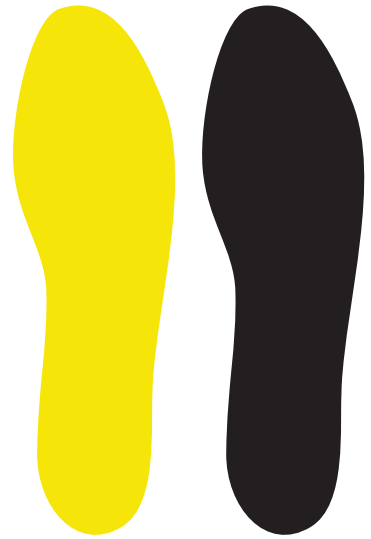


Extreme Impact Protection

XRD® is the choice for extreme impact protection. Engineered to withstand the most extreme conditions. Advanced technology that's steps ahead of the pack flexible, lightweight, comfortable and breathable. A new level in comfort and footwear protection. on Impact, the XRD high performan molecules create a unique protective shield tha can absorb up to 90% of the most intense force – hit after hit.

Cutting edge technology PORON XRD protection has been specially designed to utilise the natural behaviour of polymers to its advantage. It exploits the phenomenon that polymers can act as either a soft or hard (firm) material dependent on either temperature or the rate of impact.

In the case of XRD protection, at room temperature or 'at rest', it is soft and contouring to the touch. But when impacted, the material behaves like a much firmer material, allowing it to readily absorb the energy of an impact.



Shore O 20



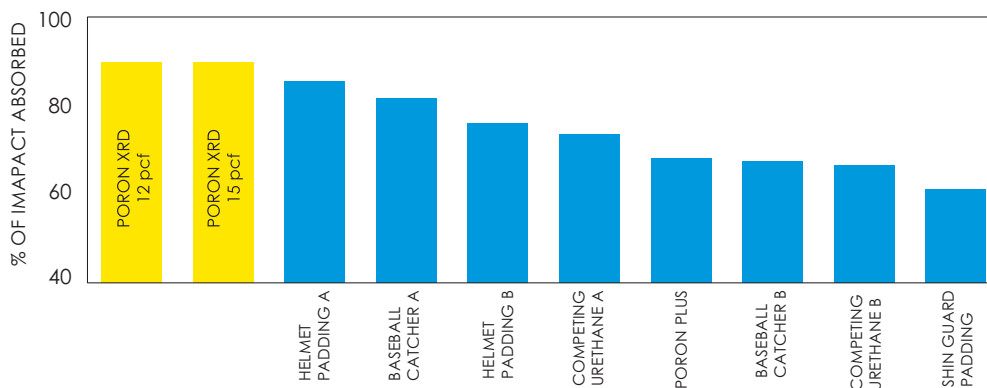
Absorbs More Than 90% of Energy

- Absorbs more than 90% of energy when impacted at high strain rates.
- Maintains performance beyond the life of the product.
- Soft and contouring against the body, yet instantly dissipates force upon impact.
- Excellent compression-set resistance.
- Lightweight: as low as 9 pcf density.
- Drapable material with a 'second skin' feeling.
- Soft and flexible to the touch.
- Contouring.
- Easily fabricated to suit a variety of applications and placements.

Colour: Yellow or Black

Sheet size: 1370 x 1000mm

Material Technologies Compared



PORON® Performance Urethanes

PORON® XRD™ Extreme Impact Protection – Physical Properties

PROPERTY	TEST METHOD	PRODUCT		
Density, lb./ft ³	ASTM D 3574-95 Test A	9	12	15
Specific Gravity		0.14	0.19	0.24
Tolerance, %		± 10		
Standard Thickness		See Page 2		
Tolerance, %		± 10		
Standard Color		35 - Vivid Yellow		
Air Permeability	Internal using Gurley Densometer	Open Cell - Breathable		
Compression Set, % max.	ASTM D 3574 Test D @ 158°F (70°C)	< 10		
Compression Force Deflection, psi, (kPa)	0.2"/min. Strain Rate Force Measured @ 25% Deflection	1.1 - 3.4 (8 - 23)	0.8 - 5.2 (6 - 36)	1.9 - 9.5 (13 - 66)
Hardness, Durometer	Shore "O"	10	19	32
Hydrolysis Resistance, Compression Set, % Max	ASTM D 3574 Test J / Test D after autoclaved 5 hrs @ 250°F (121°C)	<10		
Resilience, Shore Instrument Resiliometer, avg (Ball Rebound Tester)	ASTM D 2632-96, Vertical Rebound	3 - 5		
Water Vapor Transfer, Typical g/ft ² /24hrs (g/m ² /24hrs)	Sample Thickness, inches (mm)	0.158 (4.0)	0.118 (3.0)	0.118 (3.0)
	Based on ASTM E96-00 Upright / 37°C / 0% RH	4100-4200	3300 - 3500	3000 - 3200
	Leakage - Inverted	Yes	Yes	Yes
Water Absorption, % Wt Gain	Based on ASTM D 570 – 2hr water immersion @ room temperature	Typical Value <10		
Skin Contact	Primary Skin Irritation – FHSA. Based on ISO 10993-10 (2002), ISO 10993-12 (2007), ISO/IEC 17025 (2005)	Negligible Irritant. Primary Irritation Index = 0		
Tear Strength, pli, min. (kN/m)	ASTM D 624 Die C	4.5 (0.8)	5 (0.9)	6 (1.1)
Tensile Elongation, % min.	ASTM D 3574 Test E	> 145		
Tensile Strength, psi, min. (kPa)	ASTM D 3574 Test E	30 (207)	30 (207)	60 (414)
Restricted Substances Compliance	Based on Adidas-Salomon policy for control and monitoring of hazardous substances.	Pass		
Temperature Resistance, max Recommended Constant Use Recommended Intermittent Use Embrittlement	Internal Method based on SAE-J2236 Internal Method ASTM D 746	** ** **		
Cold Flexibility	MIL-P12420D	**		
Chemical Resistance		<i>PORON Urethanes are unaffected by mild organic acids and bases. They show modest swelling with oils and greases and other linear hydrocarbons. Strongly polar solvents will greatly swell PORON Urethanes. In most cases, physical properties recover to a great extent as the solvents evaporate.</i>		

- Notes:
1. All metric conversions are approximate.
 2. Additional technical services are available.
 3. ** Indicates testing in progress to confirm reported results.

PORON® XRD™ Product Availability

PORON® XRD™ Extreme Impact Protection

Color: Vivid Yellow (35)

Description	Thickness		Roll Size							
			Width		Length		Total		Approx. Weight	
	mm	inches	mm	inches	m	ft	m ²	ft ²	kg.	lbs.
XRD 09158	4.0	0.158	1372	54U	39.62	130	54.35	585	31.44	69.32
XRD 09236	6.0	0.236	1372	54T	24.38	80	33.45	360	28.90	63.72
XRD 09374	9.5	0.374	1372	54T	18.29	60	25.08	270	34.35	75.74
XRD 09500	12.7	0.500	1372	54T	12.19	40	16.72	180	30.62	67.50
XRD 09625	16.0	0.625	1372	54T	12.19	40	16.72	180	38.27	84.38
XRD 09750	19.0	0.750	1372	54T	9.14	30	12.54	135	34.44	75.94
XRD 12118	3.0	0.118	1372	54U	50.29	165	68.93	742	39.71	87.56
XRD 12158	4.0	0.158	1372	54U	39.62	130	54.35	585	41.93	92.43
XRD 12197	5.0	0.197	1372	54U	30.48	100	41.81	450	40.21	88.65
XRD 12236	6.0	0.236	1372	54T	24.38	80	33.45	360	38.54	84.96
XRD 12374	9.5	0.374	1372	54T	18.29	60	25.08	270	45.80	100.98
XRD 12500	12.7	0.500	1372	54T	12.19	40	16.72	180	40.82	90.00
XRD 12625	16.0	0.625	1372	54T	12.19	40	16.72	180	51.03	112.50
XRD 15118	3.0	0.118	1372	54U	50.29	165	68.93	742	49.64	109.45
XRD 15158	4.0	0.158	1372	54U	39.62	130	54.35	585	52.41	115.54
XRD 15236	6.0	0.236	1372	54T	24.38	80	33.45	360	48.17	106.20
XRD 15374	9.5	0.374	1372	54T	18.29	60	25.08	270	57.25	126.23
XRD 15500	12.7	0.500	1372	54T	12.19	40	16.72	180	51.03	112.50

Minimum Order Size - An order minimum of 185 m² / 2000 ft² in full roll quantities applies for standard products. **Please note: Special Feature Materials have a 465 m² / 5,000 ft² order minimum.**

Sample Policy - Standard sample size is 216mm x 279mm / 8.5" x 11" sheet (maximum 10) or .91m x 1.37m / 3 ft linear roll (maximum 2) per line item. Larger samples may be requested, but may require order placement. Contact the Rogers Solutions Center at 800.935.2940 or 607.786.8112.

Typical Roll Lengths are defined by product. Unless customers specifically request otherwise at time of order, manufacturer reserves the right to ship multiple rolls, including up to one (1) splice, to yield total length.

Tolerances - Length tolerance of rolls shipped is +5%/-0% of ticketed length. Special notation is made after the width: "T" for trimmed and "U" for untrimmed. Width tolerance of

rolls trimmed is +25mm / -0mm (+1.0/-0.0 inch). Untrimmed materials will be fractionally wider than the stated width. The stated width is the amount of good material charged for. The stated width is the "standard" offering; other widths such as 1117mm (44") up to 1524mm (60") and untrimmed are available upon request. Thickness tolerance is ±10% of stated thickness.

Thickness/Widths - For available non-standard thicknesses and widths, please contact a Rogers Customer Service Representative

Technical Assistance - Contact the Rogers Solutions Center - Technical Service Group at 800.935.2940 or 607.786.8112 for information on products or capabilities.

The information contained in this Data Sheet is intended to assist you in designing with Rogers' PORON XRD Extreme Impact Protection. 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 described or shown on the Data Sheet will be achieved by a user for a particular purpose. Each user must develop its own design and should determine the suitability of Rogers' products for that design.

WARNING: No impact absorbing material can prevent all injuries that may occur when the body is subjected to impact. Rogers makes no representation or warranty that PORON XRD Extreme Impact Protection will prevent such injuries. The user of protective gear containing Rogers' materials should be aware of the limitations of the gear and should exercise reasonable care and caution in the undertaking of activities that may result in impact to the body.

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