

PF100 SERIES

Norseal® PF100 Series, Micro-Cellular Polyurethane Foams

Norseal PF100 Series features premium micro-cellular polyurethane foam specifically developed for cell cushioning within electric vehicle battery packs. This generation of foam provides the widest and flattest compression range of our portfolio, a critical performance measurement commonly required by today's battery pack design engineers. PF100 exhibits outstanding, industry leading, "aged" compression set resistance at elevated temperature (up to 90°C) and humidity conditions, essential for extending the battery pack life. PF100 is delivered in the lowest thickness/density combination in the industry, allowing design engineers to maximize energy density and space while minimizing overall weight.

A typical compression curve of **Norseal** PF100 cushion pads is shown in Figure 1 to highlight the narrow range of compressive stresses across a wider range of compressive strain. Figure 2 highlights excellent compression set resistance exhibited by PF100 even at elevated temperatures, for example 90°C and high humidity conditions like 85% RH.

APPLICATIONS

- Compression/Tolerance pads for lithium-ion battery packs
- Battery pack sealing
- Cushioning and insulation for thermistors in lithium-ion battery packs

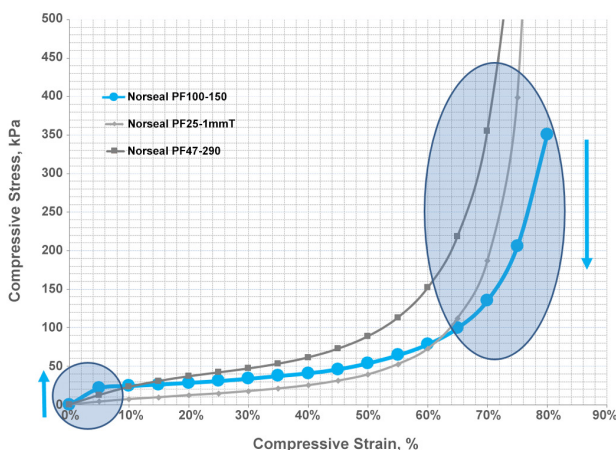


Figure 1.

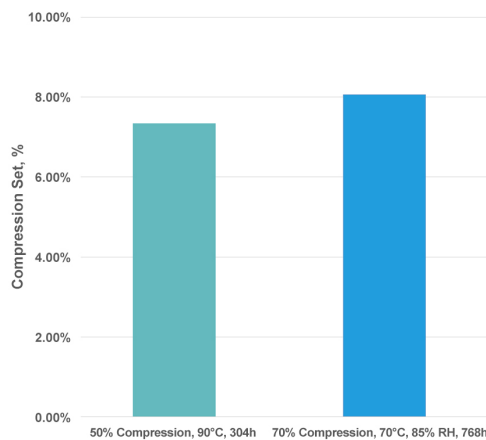


Figure 2.

Norseal PF100 Series — Properties

Performance tests are run using standard test procedures. The values presented are typical values and should not be used for specification purposes.

Properties	Test Method	PF100-150		
PHYSICAL				
Density, kg/m³ (lb/cu.ft.)	ASTM D3574	150 +/- 10 (9 +/- .6)		
Thickness, mm (in)		1.5 (.06) +/- 10%	2.0 (.08) +/- 5%	3.0 (.12) +/- 5%
Standard color	-	Black		
Standard liner	-	4 mil PET (release or permanent)		
Compression set (@ 70%, 7 days), %	ASTM D1667	<3 @ 23°C (73°F) <5 @ 70°C (158°F) <5 @ 90°C (194°F)		
Typical Compression Force Deflection, kPa (psi)	ASTM D1667**	24 kPa (3.5 psi) @10% 54 kPa (7.8 psi) @50% 135 kPa (19.6 psi) @70%		
THERMAL				
Temperature resistance, °C (°F)	Recommended constant use, max. Recommended intermittent, max.	70 (158) 121 (250)		
Thermal Conductivity, W/m.K (Density 320 Kg/m³)	ISO 8302	0.03		
Low Temperature resistance	-40°C w/25 mm mandrel	PASS		
ELECTRICAL (on nominal 1 mm thick material)				
Breakdown strength, AC, kV/mm (V/mil)	ASTM D149, Method B	1.4 (35)		
Breakdown strength, DC, kV/mm (V/mil)	ASTM D3755	1.8 (45)		
FLAME RESISTANCE				
Flame resistance	ASTM D4986 (Self-extinguishing equivalent to UL94-HBF)	PASS		

* Data in the table above is only typical value and preliminary. This cannot be considered as product specifications. Please consult your representative for more details.

** Samples preconditioned ≥ 24 hrs @ 50%RH.

Shelf Life

12 months when stored at 21°C, 50% relative humidity, when product is stored in its original packaging, away from direct sources of heat and sunlight.



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