

TECHNICAL INFORMATION SHEET

Firestone Reinforced Polypropylene (fPP-R) Geomembrane

Item Description

Black, White, Tan or Patina Green
Flexible Reinforced Polypropylene (fPP-R)
Geomembrane Rolls.

Item Number

Various

Product meets or exceeds ASTM D-7613

Product Information

Description:

Firestone fPP-R Geomembrane is a flexible reinforced polypropylene geomembrane that is produced with 9 x 9 polyester weft inserted scrim reinforcement. This heat weld-able fPP-R geomembrane is available in 36 mil-0.91 mm (0.036"), 45 mil-1.14 mm (0.045") and 60 mil-1.52 mm (0.060") thicknesses. The membrane is available with surface colors in black, white, patina green, and tan, all with a black backing. All colors are available in 3.05 m (10') widths.

Method of Application:

1. Firestone fPP-R Geomembrane is installed as a continuous layer. Rolls or panels made from rolls are overlapped (Side Laps and End Laps) prior to the heat welding of the seam areas.
2. All cut scrim areas must be sealed with Firestone extrusion weld bead.
3. Install Firestone fPP-R Geomembrane in accordance with current Firestone Building Products specifications, guidelines and details, available here, [fPP and fPP-R Technical Information](#)

Storage:

- Store away from sources of punctures and physical damage.
- Store away from ignition sources as geomembrane will burn when exposed to open flame.

Preparation of Substrates:

1. Substrates must be dry, smooth, and free of sharp edges, loose or foreign materials, oil, grease, and other materials which may damage the geomembrane.
2. All rough surfaces or voids which could damage the geomembrane shall be repaired prior to installing the geomembrane, as specified.

Precautions:

1. Take care when moving, transporting, handling, etc. to avoid sources of punctures and physical damage.
2. Isolate waste products, such as petroleum products, greases, oils (mineral and vegetable) and animal fats from the geomembrane. Contact Firestone Building Products for specific recommendations regarding chemical compatibility.
3. Refer to Safety Data Sheets (SDS) for safety information.

LEED® Information:

Post Consumer Recycled Content: 0%
Post Industrial Recycled Content: 10%
Manufacturing Location: Wellford, SC

*NOTE: LEED® is a registered trademark of the U.S. Green Building Council.

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Typical Properties

Property	Test Method	Typical Values
Tolerance on nominal thickness, %	ASTM D 5199	0.91 mm (0.036") ± 10 1.14 mm (0.045") ± 10 1.52 mm (0.060") ± 10
Thickness over scrim, mm (inches) 0.91 mm (0.036") 1.14 mm (0.045") 1.52 mm (0.060")	ASTM D 4637 Optical Method	0.254 (0.010) min 0.330 (0.013) min 0.762 (0.030) min
Mass per unit area, kg/m ² (lb/ft ²) 0.91 mm (0.036") 1.14 mm (0.045") 1.52 mm (0.060")	ASTM D 5261	0.89 (0.18) typical 1.03 (0.21) typical 1.22 (0.25) typical
Breaking strength, kN (lbf) (Grab tensile at strain rate of 12"/min) 0.91 mm (0.036") 1.14 mm (0.045") 1.52 mm (0.060")	ASTM D 7004	.98 (220) min 260 typical 300 typical
Elongation at break of fabric, %	ASTM D 7004	25 typical
Tearing strength, N (lbf) (50.8 mm (2") / min strain rate) 0.91 mm (0.036") 1.14 mm (0.045") 1.52 mm (0.060")	ASTM D 5884 (max. load)	224 (55) min 224 (55) typical 271 (61) typical
Low temperature flexibility, °C (°F)	ASTM D 2136 1/8" mandrel 4 hour @ - 40 (- 40).	PASS
Linear Dimensional Change (shrinkage), % 6h @ 70 °C (158 °F) or 1h @ 100 °C (212 °F)	ASTM D 1204	+/- 1.0 max - 0.5 typical
Ozone resistance, 100 ppm, 168 hours	ASTM D 1149	No cracks
Resistance to water (distilled) absorption After 30 days immersion 50 °C (122 °F) Change in mass, %	ASTM D 471 (coating compound only)	1.0 max 0.5 typical
Hydrostatic resistance, MPa (lbf/in ² or psi) (Mullen burst) 0.91 mm (0.036") 1.14 mm (0.045") 1.52 mm (0.060")	ASTM D 751 Procedure A	2.4 (350) min 2.9 (426) typical 3.1 (455) typical 3.4 (500) typical
Field seam strength, kN/m (lbf/in.) Seam tested in peel after weld	ASTM D 751 1 in. wide	3.9 (22) min 5.8 (33) typical
Water vapor permeance, Perms	ASTM E 96	0.10 max 0.05 typical
Puncture resistance, N (lbf) 0.91 mm (0.036") 1.14 mm (0.045") 1.52 mm (0.060")	ASTM D 4833 (index puncture)	330 (75) min 556 (125) typical 605 (136) typical
Resistance to xenon-arc weathering Xenon-Arc, 15,120 kJ/m ² total radiant exposure, visual condition at 10X	ASTM G 155 0.70 W/m ² 80 °C B.P.T.	No cracks No loss of breaking or tearing strength
Potable Water Accepted	NSF-61	PASS
Chronic Toxicity Screening	EPA/600/4-89/ 001 ASTM E-729 Method 1000.0	PASS
Ultraviolet Light Resistance ≥ 50% strength and elongation retained as per ASTM D6993-IV, with no surface cracking, and minor to no surface chalking	ASTM D7238 @ 70 °C (158 °F) for 20,000 hours	PASS
Ply Adhesion, kN/m (lbf/in.) minimum average	ASTM D6636	2.6 (15) min. avg.

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Geomembrane Panel Sizes

Product*	Dimensions		Packaging Type	Part Number	Gauge	Coverage		Weight Per roll (typical)	
	SI Units (meters)	Eng Units (feet)				SI Units (m ²)	Eng Units (ft ²)	SI Units (kg)	Eng Units (lbs)
36 mil fPP-R Black	3.05 x 152.4	10 x 500	Roll	W56VB39950	0.91 mm (0.036")	450	5,000	373	850
45 mil fPP-R Black	3.05 x 121.9	10 x 400	Roll	W56VB49940	1.14 mm (0.045")	360	4,000	371	840
45 mil fPP-R (GM 18** Certified) Black	3.05 x 121.9	10 x 400	Roll	W56VB49948	1.14 mm (0.045")	360	4,000	371	840
60 mil fPP-R Black	3.05 x 91.4	10 x 300	Roll	W56VB69930	1.52 mm (0.060")	270	3,000	329	750

* For all fPP-R products, a COA (Certificate of Analysis) is provided with every order matching the roll numbers and the sales order.

** GM18 - Rolls that are certified to meet the GRI - GM 18 specification are available in 45 mil – Black only, as special order items in 10' x 400' rolls. Allow two weeks or more for processing GM 18 orders.

- Minimum order quantities are required for colored membranes (other than black).
- Minimum order quantities are required for 60 mil membranes.

Please contact Firestone Building Product Geomembrane Sales Department at 1-888-264-1735 for further information.

This sheet is meant to highlight Firestone products and specifications and is subject to change without notice. Firestone takes responsibility for furnishing quality materials which meet published Firestone product specifications or other technical documents, subject to normal roof manufacturing tolerances. Neither Firestone nor its representatives practice architecture. Firestone offers no opinion on and expressly disclaims any responsibility for the soundness of any structure. Firestone accepts no liability for structural failure or resultant damages. Consult a competent structural engineer prior to installation if the structural soundness or structural ability to properly support a planned installation is in question. No Firestone representative is authorized to vary this disclaimer.