

FleeceBACK® PVC

FRS Membrane



Overview

FleeceBACK PVC FRS membranes are manufactured using a state-of-the-art extrusion process for complete scrim encapsulation. The PVC is reinforced with a high-strength fiberglass scrim and enhanced with fleece, creating a very tough, durable and versatile sheet that is ideal for re-roofing or new construction projects. Available in total sheet thicknesses of 115- and 135-mils, this product can be used in fully adhered and mechanically fastened applications.

Carlisle's Sure-Flex™ PVC formulation delivers excellent weatherability, flexibility and toughness, and the fiberglass reinforcing scrim provides additional dimensional stability to the sheet. In addition to providing a built-in separation layer for rough concrete decks or existing asphaltic-based roofing systems, the fleece backing enhances the membrane's puncture resistance.

Features and Benefits

- » Available in white, gray, and tan and offered in 115- and 135-mil thicknesses
- » Roll Sizes: 115-mil = 10' x 80'
135-mil = 10' x 65'
- » Superior wind uplift resistance due to the bond between fleece and adhesive
- » 67% fewer seams than Modified Bitumen systems (using 10'-wide sheets)
- » Wide window of weldability
- » Fleece reinforcement adds toughness, durability, and enhanced puncture resistance

- » Fiberglass reinforcing scrim provides excellent breaking strength
- » Low-volatility plasticizer
- » Good chemical resistance to acids, bases, restaurant oils, fats, greases, and acid rain
- » ENERGY STAR®*-qualified, California Title 24 compliant, can contribute to LEED® (Leadership in Energy and Environmental Design) credits.

Installation

Mechanically Fastened Roofing System

The mechanically fastened system starts with approved insulation being fastened with a minimum of 5 fasteners per 4' x 8' board. The FleeceBACK PVC FRS membrane is then mechanically fastened to the deck using HP-X Fasteners and Piranha Plates or HP-XTRA Fasteners and Piranha XTRA Plates. Adjoining sheets of FleeceBACK PVC membrane are overlapped over the fasteners and plates and joined together with a minimum 1½"-wide hot-air weld.

Adhered Roofing System – Low Rise Foam

Insulation is mechanically fastened or adhered with FAST™ or Flexible FAST Adhesive to the roof deck. Spray-apply or extrude adhesive onto the substrate, and allow foam to develop string/body/gel prior to setting FleeceBACK membrane into the adhesive. Roll FleeceBACK membrane with a 30"-wide, 150-pound (68 kg) segmented weighted roller to ensure full embedment. Splices are hot-air welded.

Adhered Roofing System – Water Based

The fully adhered system starts with a suitable surface on which to apply the HydroBond™ Water-Based Adhesive. HydroBond can be applied to the approved substrate with a medium nap roller. Once the adhesive has been applied, roll the membrane in place. To prevent over-drying, Carlisle recommends applying the adhesive 3'–4' at a time ahead of the roll. Immediately broom the membrane starting from the center and working out to the sides of the sheet using a soft bristle push broom to work out any air bubbles. Immediately after brooming, roll the adhered membrane in two directions in a crossways pattern using a 100-lb (45 kg) split steel membrane roller.

Review Carlisle specifications and details for complete installation information.

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Precautions

- » Sunglasses that filter out ultraviolet light are strongly recommended since the membrane's white surface is highly reflective to sunlight. Roofing technicians should dress appropriately and wear sunscreen.
- » Smooth surfaces may promote slippery conditions due to frost and ice buildup. Exercise caution during cold conditions to prevent falls.
- » Care must be exercised when working close to a roof edge when the surrounding area is snow-covered, as the roof edge may not be clearly visible.
- » Use proper stacking procedures to ensure sufficient stability of the materials.
- » Exercise caution when walking on wet membrane. Membranes may be slippery when wet.

Supplemental Approvals, Statements

FleeceBACK PVC FRS membranes meet or exceed the requirements of ASTM D4434 Standard Specification for Poly (Vinyl Chloride) Sheet Roofing. FleeceBACK PVC is classified as Type III as defined by ASTM D4434.

Radiative Properties for ENERGY STAR [®] , Cool Roof Rating Council (CRRC), and LEED				
Physical Property	Test Method	White PVC	Tan PVC	Gray PVC
ENERGY STAR - E-903 Initial Solar Reflectance	Solar Spectrum Reflectometer	0.86	0.73	0.59
ENERGY STAR - E-903 Solar Reflectance after 3 years	Solar Spectrum Reflectometer (Uncleaned)	0.63	Pending	Pending
CRRC - Initial Solar Reflectance	ASTM C1549	0.86	0.72	0.59
CRRC - Solar Reflectance after 3 years	ASTM C1549 (uncleaned)	0.63	0.60*	0.49*
CRRC - Initial Thermal Emittance	ASTM C1371	0.89	0.87	0.89
CRRC - Thermal Emittance after 3 years	ASTM C1371 (uncleaned)	0.87	0.86*	0.86*
Solar Reflective Index (SRI)	ASTM E1980	108	88	70
Solar Reflective Index (SRI) SRI after 3 years	ASTM E1980	75	71*	56*

*Rapid Ratings

Typical Properties and Characteristics

Physical Property	ASTM D4434 Requirement	115-mil	135-mil
Thickness Over Scrim , in. (mm) ASTM D4434 optical method, average of 3 areas	0.016 min (0.40)	0.030 typ (0.762)	0.040 typ (1.016)
Membrane Thickness	-	60-mil + 55-mil fleece	80-mil + 55-mil fleece
Breaking Strength (MD x CD), lbf (N) ASTM D751 proc. A	200 min (890)	450 x 400	500 x 450
Elongation break of reinforcement (MD x CD), % ASTM D751 grab method	15 min	70 x 100	70 x 100
Seam Strength , min. ASTM D751 grab method (% of breaking strength)	>75	PASS	PASS
Tearing Strength (CD), lbf (N) ASTM D751 proc. B, 8 in. x 8 in.	45 (200)	60	60
Low Temperature Bend , no cracks 5x ASTM D2136	PASS	PASS (-40°C)	PASS (-40°C)
Linear Dimensional Change , % ASTM D1204, 6 hours at 176°F (MD x CD)	± 0.5 max	0.36 x 0.00 typ	0.36 x 0.00 typ
Ozone Resistance , no cracks 7X ASTM D1149, 100 pphm, 168 hrs	PASS	PASS	PASS
Water Absorption Resistance , mass % ASTM D570 166 hours at 158°F water	± 3.0 max.	2.0 typ	2.0 typ
Field Seam Strength , lbf /in. (kN/m) ASTM D1876 tested in peel	No requirement	25 (4.4) min 60 (10.5) typ	25 (4.4) min 60 (10.5) typ
Water Vapor Permeance , Perms ASTM E96 proc. B	No requirement	0.10 max 0.05 typ	0.10 max 0.05 typ
Puncture Resistance - Dynamic , J (ft-lbf) ASTM D5635	20 (14.7)	PASS	PASS
Puncture Resistance - Static , lbf (N) ASTM D5602	33 (145)	PASS	PASS
Xenon-Arc Resistance , no cracks/crazing 10x ASTM G155 0.35 W/m ² at 340nm, 63°C B.P.T. 12,600 kJ/m ² total radiant exposure 10,000 hours	PASS	PASS	PASS
Properties After Heat Aging ASTM D3045, 56 days at 176°F Breaking strength, % retained Elongation reinf., % retained	90 min 90 min	90 min 90 min	90 min 90 min

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED[®] Information

Pre-consumer Recycled Content	5%
Post-consumer Recycled Content	0%
Manufacturing Location	Hillside, NJ
Solar Reflectance Index (SRI), Initial	White: 108, Tan: 89, Gray: 69