CARLISLE SYNTEC SYSTEMS

FleeceBACK® PVC
Polyester Membrane



Overview

Carlisle's FleeceBACK PVC polyester reinforced membrane is tough, durable, and versatile, making it ideal for a wide variety of re-roofing and new construction projects. Manufactured using a hot-melt extrusion process for complete scrim encapsulation, this product is available in total sheet thicknesses of 115, and 135 mils.

FleeceBACK PVC polyester reinforced membrane offers exceptional weatherability, flexibility, and toughness due to its polyester reinforcing scrim and polyester fleece backing. The polyester reinforcing scrim provides the sheet with added breaking strength, tear strength and puncture resistance for fully adhered or mechanically attached applications; the fleece backing adds to the puncture-resistance of the membrane and provides a built-in separation layer against rough concrete decks or existing asphaltic-based roofing systems. Years of proven PVC formulation performance helps to ensure the membrane remains pliable and weldable as it ages.

Features and Benefits

- Available in white, gray, light gray, slate gray, and tan and offered in 115- and 135-mil thicknesses
- Roll Sizes: 115-mil = 5' x 100' and 10' x 100'
  135-mil = 5' x 75' and 10' x 75'
- Provides superior wind uplift performance and ratings (up to FM 1-990) due to a mechanical bond between the fleece and adhesive
- Passes UL-2218 Class 4 rating
- Labor-saving 10'-wide sheets result in 67% fewer seams than a modified bitumen system of comparable size
- Polyester reinforcing scrim provides exceptional puncture strength
- Low-volatility plasticizer in proven performance PVC formulation
- Good chemical resistance to acids, bases, restaurant oils, fats, greases, and acid rain
- White is 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 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 Flexible FAST™ Adhesive to the roof deck. Spray-apply, splatter, 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 minimum 150-lb (68 kg) segmented membrane roller.

Review Carlisle specifications and details for complete installation information.

Supplemental Approvals, Statements, and Characteristics

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

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Precautions

- Use proper stacking procedures to ensure sufficient stability of the materials.
- Exercise caution when walking on wet membrane; membranes may be slippery when wet.
- Sunglasses which filter out ultraviolet light are strongly recommended since white surfaces are highly reflective to sunlight. Roofing technicians should dress appropriately and wear sunscreen.
- White surfaces reflect heat and may become slippery due to frost and ice accumulation.
- Care must be exercised when working close to a roof edge, particularly when the surrounding area is snow-covered, as the roof edge may not be clearly visible.
- FleeceBACK membrane rolls must be tarped and elevated to keep them dry prior to installation. If the fleece gets wet, use a wet vac system to help remove moisture from the fleece.
- PVC membrane that has been exposed to the weather must be prepared with Carlisle's PVC & KEE HP Membrane Cleaner prior to hot-air welding.

Radiative Properties for Cool Roof Rating Council (CRRC) and LEED

Physical Property	Test Method	White PVC	Tan PVC	Gray PVC	Light Gray PVC	Slate Gray PVC
CRRC - Initial Solar Reflectance	ASTM C1549	0.87	0.75	0.59	0.72	N/A
CRRC - Solar Reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.65*	0.49*	0.64*	N/A
CRRC - Initial Thermal Emittance	ASTM C1371	0.89	0.88	0.89	0.89	N/A
CRRC - Thermal Emittance after 3 years	ASTM C1371 (uncleaned)	0.88	0.88*	0.89	0.88	N/A
Solar Reflective Index (SRI)	ASTM E1980	110	92	70	88	N/A
Solar Reflective Index (SRI) SRI after 3 years	ASTM E1980	86	78*	57	77*	N/A

*Rapid Ratings

Typical Properties and Characteristics

Physical Property	ASTM D4434 Requirement	115-mil	135-mil
Thickness over fleece	No requirement	60-mil	80-mil
Membrane Thickness Over Scrim, in. (mm) ASTM D4434 optical method, average of 3 areas	0.016 min (0.40)	0.027 (0.686)	0.037 (0.940)
Weight, lbs/ft^2 (kg/m^2)	No requirement	0.45	0.59
Breaking strength (MD x CD), lbf/in (kN/m) ASTM D751 grab method	200 min (890)	420 x 380 (73 x 66)	450 x 410 (79 x 72)
Elongation break of reinforcement (MD x CD), % ASTM D751 grab method	15 x 15 min For reinforcing fabric only	30 x 30	30 x 30
Tearing strength (MD x CD), lbf (N) ASTM D751 proc. B, 8 in. x 8 in.	45 min (200)	197 x 165 (876 x 734)	173 x 191 (769 x 849)
Low temperature bend, ASTM D2135,no cracks 5x at -40°C	PASS	PASS	PASS
Linear dimensional change, % ASTM D1204, 6 hours at 176°F	± 0.5 max	0.4 typ.	0.4 typ.
Water absorption resistance, mass % ASTM D570, 166 hours at 158°F water	±3.0 max	2.0	2.0
Puncture resistance - Dynamic, J (ft-lbf) ASTM D5635	20 (14.7)	40 (29.5)	42.5 (31.3)
Puncture resistance - Static, lbf (N) ASTM D5602	33 (145)	63.99 (284.6)	63.99 (284.6)
Puncture Resistance - Federal Puncture (Max. Load in lbf) FTM 101C	No requirement	380	460
Xenon-Arc resistance, no cracks/crazing 10x, ASTM G155 0.35 W/m^2 at 340-nm, 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
Air Permeance (membrane only) ASTM E2178		Pass	Pass

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	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Greenville, IL
Solar Reflectance Index (SRI), Initial	White: 108, Tan: 89, Gray: 70, Light Gray: 88, Slate Gray: N/A

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