Product Data Sheet

PVC KEE HP FLEECE BACK MEMBRANE

PRODUCT DESCRIPTION

Revised: Sept, 20 2021

Mule-Hide's PVC KEE HP Fleece Back (High Performance) 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 105, 115, and 135 mils.

PVC KEE HP Fleece Back polyester reinforced membrane offers exceptional weatherability, flexibility, and toughness due to its polyester reinforcing scrim, polyester fleece backing, and DuPont® Elvaloy® KEE HP copolymer. 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. Elvaloy KEE HP, a solid plasticizer that won't migrate out of the sheet over time, helps to ensure the membrane remains pliable and weldable as it ages and reduces the amount of smoke generated during the welding process.

FEATURES AND BENEFITS

- Available in white, gray, and tan and offered in 50 (105), 60 (115), and 80 (135) mil thicknesses.
  - 50-mil roll size = 10' x 100'
  - 60-mil roll size = 10' x 100'
  - 80-mil roll size = 10' x 75'
- Provides superior wind uplift performance due to a mechanical bond between the fleece and adhesive
- Labor-saving 10'-wide sheets result in 67% fewer seams than a modified bitumen system of comparable size, when used as a cap sheet
- Fleece backing enhances toughness, durability, and puncture-resistance
- Polyester reinforcing scrim provides exceptional puncture strength
- KEE HP membrane is highly resistant to chemical types, such as acids, restaurant oils, fats, and greases
- California Title 24 compliant, and contributes toward LEED® credits
- Low-volatility KEE HP plasticizer won't migrate out of the sheet over time
- KEE HP contributes to a wide window of weldability and less smoke during the welding process

INSTALLATION

Mechanically Attached Roofing System

The mechanically fastened system starts with approved insulation being fastened with a minimum of 5 fasteners per 4' x 8' board. The PVC Fleece Back membrane is then mechanically fastened to the deck using HPD (#14) Fasteners and 2.4" Seam Plates or EHD (#15) Fasteners and 2.4" Seam Plates. Adjoining sheets of PVC Fleece Back 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 Helix Max Low Rise Foam Adhesive to the roof deck. Apply adhesive onto the substrate as beads and allow foam to rise approximately 1 minute. Adhesive should rise about ½" and still be tacky. Roll PVC Fleece Back membrane into the adhesive. Roll PVC Fleece Back 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, Mule-Hide 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 Mule-Hide specifications and details for complete installation information.

SUPPLEMENTAL STATEMENTS

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

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.
- Fleece Back 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 Mule-Hide PVC Weathered
- Membrane Cleaner prior to hot-air welding.

Radiative Properties for ENERGY STAR®*, Cool Roof Rating Council (CRRC) and LEED®				
DESCRIPTION	**TEST METHOD**	**BRIGHT WHITE PVC KEE**	**COOL TAN PVC KEE**	**COOL GRAY PVC KEE**
ENERGY STAR® E-903 Initial solar reflectance	Solar Spectrum Reflectometer	0.87	0.73	0.58
ENERGY STAR® E-903 Solar reflectance after 3 yrs	Solar Spectrum Reflectometer (uncleaned)	0.71	0.64	0.53
CRRC initial solar reflectance	ASTM C1549	0.87	0.73	0.58
CRRC solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.71	0.64	0.53
CRRC initial thermal emittance	ASTMC1371	0.89	0.88	0.88
CRRC thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.88	0.89	0.88
Solar Reflectance Index (SRI)	ASTM E1980	110	90	69
Solar Reflectance Index (SRI) after 3 years	ASTM E1980	87	77	62
CRRC Product ID Number		0670-0034	0670-0038	0670-0037

LEED® Information	
Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Greenville, IL
Solar Reflectance Index (SRI)	White: 110, Tan: 90, Gray: 69

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TYPICAL PHYSICAL PROPERTIES

Physical Properties*	ASTM D 4434 Requirement	50-mil (105)	60-mil (115)	80-mil (135)
Thickness over fleece	No requirement	50-mil	60-mil	80-mil
Thickness over scrim, in. (mm) optical method, average of 3 areas	0.016 min (0.40)	0.024 (0.61)	0.029 (0.74)	0.036 (0.91)
Weight, lbs/ft^2 (kg/m^2)	No requirements	0.38	0.46	0.59
Breaking Strength (MD x CD) Lb/in (kN/m) ASTM D751 grad method	200 min (35)	410 x 360 (71 x 63)	450 x 410 (79 x 72)	500 x 490 (87 x 86)
Elongation break of reinforcement (MD x CD), % ASTM D751 grab method	15 min	35 x 30	35 x 30	35 x 30
Tearing Strength, (MD x CD), lbf (N) ASTM D751 procedure B 8" x 8"	45 min (200)	120 x 150 (534 x 222)	120 x 150 (534 x 222)	120 x 150 (534 x 222)
Low temperature bend, ASTM D2136, no cracks at 5x at -40 Fº (-40 Cº)	PASS	PASS	PASS	PASS
Linear Dimensional Change, % ASTM D1206, 6 hours at 176°F	±0.5 max	0.4 typ.	0.4 typ.	0.4 typ.
Water absorption resistance, Mass % ASTM D570, 166 hours at 158°F water	±3.0 max	1.25	0.87	0.89
Puncture resistance – Dynamic J (ft-lbf) ASTM D5635	20 (14.7)	PASS	PASS	PASS
Puncture resistance – Static Lbf (N) ASTM D5602	33 (145)	PASS	PASS	PASS
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	PASS
Properties after heat aging ASTM D3045, 56 days at 176°F Breaking strength, % retained Elongation reinforcement, % retained	 90 min 90 min	 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 or specification range for any particular property of this product.

PROTECTION & SAFETY

Mule-Hide maintains Safety Data Sheets on all of its non-exempt products. Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers. Mule-Hide's Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Mule-Hide products in your facilities.

ADDITIONAL INFORMATION

The information given on this PDS is subject to change without notice. Always check the Mule-Hide website at www.mulehide.com for the latest information, changes and updates or contact Mule-Hide Products Company at 800-786-1492.

DISCLAIMER

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