VERSICO'S VERSIFLEX™ FRS PVC MEMBRANE

Overview

VersiFlex FRS PVC is an advanced-formula, heat-weldable PVC thermoplastic membrane that is designed for long-term weatherability and performance. The physical properties of the membrane are enhanced by fiberglass reinforcement that is encapsulated by thick PVC-based top and bottom plies for fully adhered applications only. The combination of the fiberglass reinforcement and the PVC plies provide VersiFlex FRS PVC membranes with enhanced dimensional stability for fully adhered roof systems using liquid-applied bonding adhesives. The smooth surface of the VersiFlex FRS PVC membrane allows for a permanent weld that creates a consistent, watertight monolithic roof assembly.

Features and Benefits

- Wide choice of thicknesses
- Enhanced chemical resistance
- Energy efficiency in warm southern climates
- Heat weldability
- Low temperature flexibility
- Encapsulated fiberglass for added dimensional stability in fully adhered applications
- Impact and puncture resistance
- UV, ozone and oxidation resistance
- Easy installation

Installation

With minimal labor and few components required, VersiFlex FRS PVC is quick and easy to install. VersiFlex systems may be installed utilizing laborsaving devices that make sheet welding fast, clean and consistent.

Fully Adhered Roofing Systems

The fully adhered system starts with a suitable surface or approved insulation being fastened at the required density (maximum 1 fastener every 2 sq. ft.) necessary to resist the appropriate wind load, to apply the Low-VOC or Aqua Base 120 PVC Bonding Adhesive. After thorough stirring (minimum 5 minutes), apply Bonding Adhesive to substrate and membrane using a 9" (23 mm) medium nap roller. Applications should be continuous and uniform, avoiding globs or puddles. An open time of 5 to 50 minutes, based on drying conditions, is recommended before assembly. PVC Bonding Adhesive must be allowed to dry until it does not string or stick to a dry finger touch. Any coated area that has been exposed to rain should be allowed to dry before being recoated.

Do not apply adhesive to areas to be hot-air welded. Roll the membrane onto the adhesive-coated substrate while avoiding wrinkles. Immediately brush down the bonded portion of the sheet with a soft-bristle push broom or a clean dry roller applicator to achieve maximum contact.

Contact your Versico Independent Sales Representative for the specific design requirements and installation procedures for this system.

Precautions

1. Sunglasses that filter out ultraviolet light are strongly recommended as the white surface is highly reflective to sunlight. White surfaces reflect heat and light. Roofing technicians should dress appropriately and wear sunscreen to protect skin from the sun.

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2. Smooth surfaces become slippery due to frost and ice build up. Exercise caution during cold conditions to prevent falls.

3. Care must be exercised when working close to a roof edge when surrounding area is snow covered as the roof edge may not be clearly visible.

4. Use proper stacking procedures to ensure sufficient stability of the materials.

5. Exercise caution when walking on wet membrane. Membranes may be slippery when wet.

6. Store VersiFlex membrane in the original undisturbed plastic wrap in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. VersiFlex membrane that has been exposed to the weather or contaminated with dirt must be prepared with PVC Membrane Cleaner prior to hot-air welding.

Supplemental Approvals, Statements and Characteristics

1. VersiFlex Reinforced FRS PVC meets or exceeds the requirements of ASTM D4434 Standard Specification for Poly (Vinyl Chloride) Sheet Roofing. VersiFlex Reinforced FRS PVC is classified as type II as defined by ASTM D4434.

2. VersiFlex Reinforced FRS PVC was tested for dynamic puncture resistance per ASTM D5635-04 using the most recently modified impact head. 50-mil thick membrane was watertight after an impact energy of 10.0 J (14.75 ft-lbf) which passes the ASTM D4434 requirement.

3. VersiFlex Reinforced FRS PVC was tested for static puncture resistance per ASTM D5602-98 and exceeded 33 lbf (145 N) which passes the ASTM D4434 requirement.

LEED INFO	
Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Hillside, NJ
VOC Content	0
Solar Reflectance Index	White: 110

RADIATIVE PROPERTIES FOR ENERGY STAR®*, COOL ROOF RATING COUNCIL (CRRC), AND LEED®

Radiative Property	Test Method	White PVC	Tan PVC	Gray PVC
ENERGY STAR - E-903 Initial solar reflectance	Solar Spectrum Reflectometer	0.87	N/A	N/A
ENERGY STAR - E-903 Solar reflectance after 3 years	Solar Spectrum Reflectometer (uncleaned)	0.61	N/A	N/A
CRRC - Initial solar reflectance	ASTM C1549	0.87	0.45	0.39
CRRC - Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.61	Pending	Pending
CRRC - Initial thermal emittance	ASTM C1371	0.95	0.86	0.87
CRRC - Thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	Pending	Pending
LEED - Thermal emmittance	ASTM E408	0.94	0.94	0.94
Solar Reflectance Index (SRI)	ASTM E1980	110	49	42

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Typical Properties and Characteristics**

Physical Property	Test Method	Property of Unaged Sheet	Property after ASTM D3045 aging 56 days @ 176°F
Tolerance on nominal thickness, %	ASTM D638	±10	
Thickness over fiber, in. (mm) 50-mil & 60-mil 80-mil	ASTM D4434 Optical Method (avg. of 3 areas)	 0.016 (0.406) min 0.025 (0.635) min	
Tensile strength, psi (MPa) (machine & cross-machine direction)	ASTM D638	1500 (10.4) min 1900 (13.1) typical	90% min retention of original tensile stength
Elongation at break, % Machine direction Cross-machine direction	ASTM D638	 250 min (270 typical) 220 min (250 typical)	90% min retention of original elongation
Tear resistance, lbf (N)	ASTM D1004	10 (45) min 12 (53) typical	
Low temperature bend at -40°F (-40°C)	ASTM D2136	Pass	
Linear dimensional change (shrinkage), % After 6 hours at 176°F (80°C)	ASTM D1204	± 0.1 max -0.05 typical	
Ozone resistance, 100 pphm. 168 hours	ASTM D1149	No Cracks	
Resistance to water absorption After 7 days immersion 158°F (70°C) Change in mass, %	ASTM D570	3.0 max 0.5 typical	
Seam strength, % of tensile strength	ASTM D638	75 min 80 typical	
Water vapor permeance, Perms	ASTM E96	0.10 max 0.05 typical	
Puncture resistance (See supplemental section for additional puncture data.)			
Resistance to xenon-arc weathering Xenon-Arc, 6300 kJ/m²total radiant exposure, visual condition at 10x (ASTM D4434 light & spray cycle)	ASTM G155 0.35 W/m² 63°C B.P.T.*** (5,000 hours)	No cracks (none) No crazing (none)	

** 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.

*** *Black panel temperature*