VersiFlex™ PVC Membrane



Overview

Versico's VersiFlex 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 a tenacious, weft-inserted polyester fabric that is encapsulated by thick PVC-based top and bottom plies. The smooth surface of the PVC membrane allows for a total-surface fusion and permanent weld, creating a consistent, watertight, monolithic roof assembly. PVC can be used in adhered and mechanically fastened systems. The dark gray-colored bottom ply provides a visual confirmation of a proper weld during the lap welding process.

Features and Benefits

- Wide choice of membrane sizes, thicknesses and colors
- Enhanced chemical resistance
- · Can increase a building's energy efficiency
- Excellent heat weldability
- Exceptional low-temperature flexibility
- Highly resistant to punctures, UV, ozone and oxidation
- Impact Resistance UL-2218 Class 4 Rating
- Easy installation
- Available in white, gray, light gray, slate gray, and tan



Installation

With minimal labor and few components required, PVC is quick and easy to install. VersiFlex PVC systems are installed using an Automatic Heat Welder, making sheet welding fast, clean and consistent.

Fully Adhered Roofing System

The fully adhered system starts with a suitable surface upon which the CAV-GRIP PVC, Low-VOC PVC Bonding Adhesive, or HydroBond $^{\text{TM}}$ Water-Based PVC Bonding Adhesive is applied.

Mechanically Attached Roofing System

The mechanically attached system starts with approved insulation being fastened with a minimum of 5 fasteners per 4' by 8' board. The PVC membrane is then mechanically attached to the deck using HPVX Fasteners and Plates or HPV-XL Fasteners and Plates. Adjoining sheets of PVC membrane are overlapped over the fasteners and plates and joined together with a minimum $1\frac{1}{2}$ "-wide hot-air weld.

REVIEW VERSICO'S SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Optional APEEL™ Protective Film:

Shield Versico's VersiFlex PVC membrane from dirt and scuffs during installation with APEEL Protective Film. Factory-applied and easy to remove, APEEL



eliminates the need for rooftop cleaning upon project completion.

- Ideal for re-roofing, re-cover, and new construction projects
- Simple and easy to remove
- Film is 100% PVC and recyclable
- Saves time and money when compared to pressure washing
- Protecting from dirt maintains maximum membrane reflectivity

Installation

Simply order membrane with APEEL, install, and remove the film to reveal a clean, new roof.

- APEEL Protective film can be left in place for up to 90 days without affecting the integrity of the film
- After 30 days, membrane sections covered by APEEL should be cleaned with PVC/KEE HP membrane cleaner prior to welding
- Be sure to clean any excess cleaners, solvents, or adhesives spilled on APEEL protective film

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Precautions

- Sunglasses that filter out ultraviolet light are strongly recommended as the white surface is highly reflective to sunlight. Roofing technicians should dress appropriately and wear sunscreen.
- 2. Smooth surfaces may cause slippery conditions due to frost and ice build-up. Exercise caution during cold conditions to prevent falls.
- 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.
- Use proper stacking procedures to ensure sufficient stability of the materials.
- Exercise caution when walking on wet membrane. Membranes may be slippery when wet.
- 6. Store PVC membrane in the original undisturbed plastic wrap in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. PVC 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

- PVC meets or exceeds the requirements of ASTM D4434 Standard Specification for Poly (Vinyl Chloride) Sheet Roofing. VersiFlex is classified as Type III and/or Type IV as defined by ASTM D4434.
- VersiFlex reinforced 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 22.5 J (16.6 ft-lbf), which passes the ASTM D4434 requirement.
- VersiFlex reinforced PVC was tested for static puncture resistance per ASTM D5602-98 and exceeded 33 lbf (145 N), which passes the ASTM D4434 requirement.

LEED® Information

| Pre-consumer Recycled Content | 10% |
|--------------------------------|---|
| Post-consumer Recycled Content | 0% |
| Manufacturing Location | Greenville, IL |
| Solar Reflectance Index | White: 108, Tan: 88, Gray: 70, Light Gray: 90, Slate Gray: N/A |

Radiative Properties for ENERGY STAR®†, Cool Roof Rating Council (CRRC) and LEED

| Physical Property | Test Method | White PVC | Tan PVC | Gray PVC | Light Gray PVC | Slate Gray PVC |
|--|---|--------------|------------|-------------|----------------------|----------------------|
| ENERGY STAR – E-903 Initial Solar Reflectance | Solar Spectrum Reflectometer | 0.86 | 0.73 | 0.59 | 0.74 | N/A |
| ENERGY STAR – E-903 Solar Reflectance after 3 years | Solar Spectrum Reflectometer (Uncleaned) | 0.63 | Pending | Pending | Pending | N/A |
| CRRC – Initial Solar Reflectance | ASTM C1549 | 0.86 | 0.72 | 0.59 | 0.74 | N/A |
| CRRC – Solar Reflectance after 3 years | ASTM C1549 (uncleaned) | 0.63 | 0.60* | 0.49* | 0.64* | N/A |
| CRRC – Initial Thermal Emittance | ASTM C1371 | 0.89 | 0.87 | 0.89 | 0.88 | N/A |
| CRRC – Thermal Emittance after 3 years | ASTM C1371 (uncleaned) | 0.87 | 0.86* | 0.86* | 0.89* | N/A |
| Solar Reflective Index (SRI) | ASTM E1980 | 108 | 88 | 70 | 90 | N/A |
| Solar Reflective Index (SRI) after 3 years | ASTM E1980 | 75 | 71* | 56* | 77* | N/A |

^{*}Rapid Results



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Typical Properties and Characteristics

| Physical Property | ASTM D4434 Requirement | 50-mil | 60-mil | 80-mil |
|---|---------------------------|-------------------------------|-------------------------------|-------------------------------|
| Thickness over scrim, in. (mm) ASTM D4434 optical method, average of 3 areas | 0.016 min (0.40) | 0.022 (0.559) | 0.027 (0.686) | 0.037 (0.940) |
| Weight, lbs/ft² (kg/m²) | No requirement | 0.33 (1.61) | 0.40 (1.95) | 0.55 (2.68) |
| Breaking strength (MD x CD), lbf/in (kN/m)ASTM D751 grab method | 275 min (48) | 320 x 300 (56 x 53) | 330 x 300 (58 x 55) | 360 x 330 (63 x 58) |
| Elongation break of reinforcement (MD x CD), % ASTM D751 grab method | 25 min | 30 x 30 | 30 x 30 | 30 x 30 |
| Tearing strength (MD x CD), lbf (N) ASTM D751 proc. B, 8 in. x 8 in. | 90 min (400) | 100 x 120 (445 x 534) | 100 x 130 (445 x 578) | 100 x 132 (445 x 587) |
| Low temperature bend, ASTM D2135,no cracks 5x at -40°C | PASS | PASS (-40°C) | PASS (-40°C) | PASS (-40°C) |
| Linear dimensional change, % ASTM D1204, 6 hours at 176°F | ± 0.5 max | 0.4 | 0.4 | 0.4 |
| Ozone resistance, no cracks 7X ASTM D1149, 100 pphm, 168 hrs | PASS | PASS | PASS | PASS |
| Water absorption resistance, mass % ASTM D570 166 hours at 158°F water | ± 3.0 max | 2.0 | 2.0 | 2.0 |
| 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 | 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 | 0.10 max 0.05 typ |
| Puncture resistance - Federal, lbf (kN) FTM 101C, method 2031 | No requirement | 280 | 320 | 380 |
| 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/m² at 340nm, 63°C B.P.T. 12,600 kJ/m² 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 reinf., % 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 range for any particular property of this product.



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