CARLISLE SYNTEC SYSTEMS

Sure-White® EPDM Membranes

Overview

Sure-White is a white 60-mil (1.52 mm) or 90-mil-thick (2.28 mm) non-reinforced EPDM-based elastomeric homogenous roof covering. This roofing membrane may be used for new single-ply roof construction and re-roofing applications. Sure-White 60-mil is available in widths up to 20' (6 m) and lengths of up to 100' (30 m). Sure-White 90-mil is available in widths of 10' (3 m) and lengths of up to 100' (30 m). Sure-White EPDM membrane meets ENERGY STAR®*, LEED® and California Title 24 cool roof standards for initial and aged solar reflectance and thermal emittance.

Features and Benefits

- Carlisle Sure-White EPDM has 25 years of proven performance
- Industry leading resistance to outdoor weathering with 25,200 kJ/m² total radiant exposure without cracking or crazing
- Factory-Applied Tape™ Seams and Pressure-Sensitive Flashing accessories enhance workmanship quality
- White EPDM helps reduce air conditioning costs in warmer climates
  - ENERGY STAR cautions that a heating penalty may outweigh the cooling benefit in central and northern climates
  - Reduces carbon footprint by lowering air conditioning costs
- Life Cycle Assessment using EPA's TRACI model analyzed EPDM, TPO, PVC and Modified-Bitumen
  - EPDM had the lowest Global Warming Potential
  - EPDM had the lowest Acid Rain impact
  - EPDM had the lowest contribution to Smog
- Numerous studies and real world experience confirm that Sure-White EPDM's 540% elongation and weathering resistance result in superior hail damage resistance; UL 2218 Class 4 rating
- EPDM is the most dimensionally stable heat resistant membrane and stays flexible even in extremely cold conditions , down to -40°F (see Flexibility/Torsion DMA data)
- Extruded manufacturing technology results in seamless 10' wide sheets
- 60-mil and 90-mil membranes available for up to 25- and 30-year warranties and are UL and FM approved
- Zero fungi growth in ASTM G21 test
- Carlisle manufactures all the major components of a typical roofing system including membrane, flashings, tapes, adhesives, sealants, insulations and insulating cover boards

Carlisle's Factory-Applied Tape Seam Technology

The Factory-Applied Tape process results in a reliable seam with greater peel and sheer strengths with no entrapped air bubbles. Consistent placement of the Factory-Applied Tape also maximizes the splice area and results in a high-quality seam. Shelf life for Factory-Applied Tape is 1 year.

Productivity Boosting Features and Benefits:

- With Carlisle's Factory-Applied Tape, most of the labor to create seams between membrane panels is completed in a quality-controlled, state-of-the-art environment
- Factory-Applied Tape is available on Sure-White membranes up to 20' (6 m) in width, providing the fastest way to complete a seam in today's roofing market
- Wider sheets like 16.5' and 20' reduce the frequency of seams compared to 10'-wide sheets

Installation

Sure-White membrane is primarily utilized in Design A, Fully Adhered Roofing Systems.

Sure-White Design A: Fully Adhered Roofing System: insulation is mechanically attached or adhered to the roof deck. The substrate and membrane are coated with Carlisle Bonding Adhesive. The membrane is then rolled into place and broomed down. To complete seams between two adjoining membrane panels, apply primer to the splice area in conjunction with Carlisle's Factory-Applied Tape. As an alternative, Carlisle's hand-applied SecurTAPE may be used.

For cold weather splicing below 40°F (5°C), these steps must be followed:

1. Heat the primed area of the bottom membrane with a hot-air gun as the top sheet with Factory-Applied Tape is applied and pressed into place.
2. Prior to rolling the splice area with a 2"-wide steel hand roller, apply heat to the top side of the membrane with a hot-air gun. The heated surface should be hot to the touch. Be careful not to burn or blister the membrane.

Review Carlisle specifications and details for complete installation information.

CARLISLE SYNTEC SYSTEMS

Sure-White EPDM Membranes

Precautions

- Sunglasses that filter our ultraviolet light are strongly recommended as the white surface intensifies sunlight through reflection.
- White surfaces reflect heat and may become slippery due to frost and ice build-up. Exercise extreme caution during cold conditions to prevent falls.
- Use caution when working close to a roof edge when surrounding area is snow covered as roof edge may not be clearly visible.
- Use proper stacking procedures for sufficient stability of materials.
- Exercise caution when walking on wet membrane. Membranes are slippery when wet.
- Membranes with Factory-Applied Tape should not be exposed to prolonged jobsite storage temperatures in excess of 90°F (32°C); otherwise, the shelf life of the Factory-Applied Tape may be affected.
- When Sure-White with Factory-Applied Tape is used, shade the tape end of the rolls until ready to use in warm, sunny weather.
- Shelf life for Factory-Applied Tape is 1-year.

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

Physical Property	Test Method	Sure-White EPDM
ENERGY STAR – Initial solar reflectance	Solar Spectrum Reflectometer	0.76
ENERGY STAR – Solar reflectance after 3 years	Solar Spectrum Reflectometer (after cleaning)	0.64
CRRC – Initial solar reflectance	ASTM C1549	0.76
CRRC – Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.64
CRRC – Initial thermal emittance	ASTM C1371	0.90
CRRC – Initial thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.87
LEED – Thermal emittance	ASTM E408	0.91
SRI – (Solar Reflectance Index)	ASTM E1980 (initial) 3 year aged	94 77

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Carlisle, PA
Solar Reflectance Index	94

Typical Properties and Characteristics

Physical Property	Test Method	SPEC. (PASS)	Typical
Tolerance on Nominal Thickness, %	ASTM D412	±10	±10
Weight, lbs/ft² (kg/m²) 60-mil 90-mil			 0.37 (1.8) 0.60 (2.9)
Tensile Strength, min, psi (MPa)	ASTM D412	1305 (9)	1465 (10.1)
Elongation, Ultimate, min, %	ASTM D412	300	540
Tear Strength, min, lbf/in (kN/m)	ASTM D624 (Die C)	150 (26.3)	187 (32.7)
Factory Seam Strength, min	Modified ASTM D816	Membrane Rupture	Membrane Rupture
Resistance to Heat Aging* Properties after 28 days @ 240°F (116°C) Tensile Strength, min, psi (MPa) Elongation, Ultimate, min, % Tear Strength, min, lbf/in (kN/m) Linear Dimensional Change, max, %	ASTM D573 ASTM D412 ASTM D412 ASTM D624 ASTM D1204	 1205 (8.3) 200 125 (21.9) ±1.0	 1345 (9.3) 280 185 (32.4) -0.2
Ozone Resistance* Condition after exposure to 100 pphm Ozone in air for 168 hours @ 104°F (40°C) Specimen is at 50% strain	ASTM D1149	No Cracks	No Cracks
Brittleness Temp., max, °F (°C)*	ASTM D746	-49 (-45)	-67 (-55)
Resistance to Water Absorption* After 7 days immersion @ 158°F (70°C) Change in mass, max, %	ASTM D471	+8, -2	+3.3
Water Vapor Permeance* Max, perms	ASTM E 96 (Proc. B or BW)	0.10	0.02
Flexibility/Torsion DMA	ASTM D5279-08	N/A	55 MPa @ -40°F
Fungi Resistance	ASTM G21	N/A	0 (No Growth)
Resistance to Outdoor (Ultraviolet) Weathering* Xenon-Arc, total radiant exposure at 0.70 W/m² irradiance, 80°C black panel temperature	ASTM G155	No Cracks No Crazing 7,560 kJ/m² 3,000 hrs	No Cracks No Crazing 25,200 kJ/m² 10,000 hrs
At 0.35 W/m² irradiance, 80°C black panel temperature		6,000 hrs	20,000 hrs

*Not a Quality Control Test due to the time required for the test or the complexity of the test. However, all tests are run on a statistical basis to ensure overall long-term performance of the sheeting.

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.

Note: Sure-White non-reinforced EPDM membrane meets or exceeds the minimum requirements set forth by ASTM D4637 for Type I non-reinforced EPDM single-ply roofing membranes.

* The ENERGY STAR program recommends using the Roof Savings Calculator (rsc.ornl.gov) to determine if a white reflective roof will save or cost you money compared to a dark-colored roof depending on geographic climate conditions, building location, and other variables.

800-479-6832 | P.O. Box 7000 | Carlisle, PA 17013 | Fax: 717-245-7053 | **www.carlislesyntec.com**