



Enviroclad Membrane

Product Information

Description

Skellerup Viking Enviroclad – is a scrim reinforced sheet membrane made from TPO (Thermoplastic Polyolefin). Available in grey and white (tan on indent) and thicknesses of 1.14mm and 1.5mm, Enviroclad's 3.0 metres wide sheets are fully adhered with Carlisle's Sure Weld bonding adhesive and adjoining sheets are overlapped approximately 50mm and heat-joined by a watertight hot air weld.

Applications

Despite TPO membranes being found predominantly on large commercial flat roofs; (especially buildings such as large cool-stores needing energy-efficiency), TPO is equally as effective in residential situations, such as those with roof-decks where the heat-welded joints will ensure a watertight result if applied by a Skellerup Viking Approved Applicator.

Colours and Dimensions

Colour - grey and white (tan on indent)

Thicknesses - 1.14mm and 1.5mm

Width - 3.0 metres wide (1.2m, 2.4m and 3.6m available on indent)

Length - 30.4 metres long*

* Like Dec-k-ing PVC, Enviroclad is supplied cut to length based on measurements supplied by the Skellerup Viking Approved Applicator.

Physical Properties

Physical Property	Test Method	Property Of Unaged Sheet	Property After ASTM D573 aging ¹ 28 days @ 240 °F
Tolerance on nominal thickness, %	ASTM D751	± 10	
Thickness over scrim, in. (mm)	ASTM D6878	typical	
- 45-mil	Optical Method	0.018 (0.457) ± 10%	
- 60-mil	(avg. of 3 areas)	0.024 (0.610) ± 10%	
Breaking strength, lbf (kN)	ASTM D751	225 (1.0) min. 45-mil	225 (1.0) min. 45-mil
	Grab Method	320 (1.4) typical 45-mil	320 (1.4) typical 45-mil
		250 (1.1) min. 60-mil	250 (1.1) min. 60-mil
		360 (1.6) typical 60-mil	360 (1.6) typical 60-mil
Elongation at break of fabric, %	ASTM D751	25 typical	25 typical
Tearing strength, lbf (N) 8 by 8 in. specimen	ASTM D751	55 (245) min.	55 (245) min.
	B Tongue Tear	130 (578) typical	130 (578) typical
Brittleness point, °F (°C)	ASTM D2137	- 40 (- 40) max. - 50 (- 46) typical	
Linear Dimensional Change (shrinkage), %	ASTM D1204	+/- 0.5 max. - 0.2 typical	
- After 6 hours at 158 °F (70 °C)			
Ozone resistance, 100 pphm, 168 hours	ASTM D1149	No cracks	No cracks
Resistance to water absorption	ASTM D471	4.0 max.	
- After 7 days immersion 158 °F (70 °C)	(top surface only)	2.0 typical	
- Change in mass, %			
Resistance to microbial surface growth,	ASTM D3274	9-10 typical	
- rating (1 is very poor, 10 is no growth)	2 yr S. Florida		
Field seam strength, lbf/in. (kN/m)	ASTM D1876	25 (4.4) min.	
- Seam tested in peel		60 (10.5) typical	
Water vapor permeance, Perms	ASTM E96	0.10 max. 0.05 typical	
Puncture resistance, lbf (kN)	FTM 101C	250 (1.1) min. 45-mil	
(see supplemental section for additional puncture data)	Method 2031	325 (1.4) typical 45-mil 300 (1.3) min. 60-mil 350 (1.6) typical 60-mil	
Resistance to xenon-arc weathering ²			
- Xenon-Arc, 17,640 kJ/m ² total radiant	ASTM G155	No cracks	
- exposure, visual condition at 10X	0.70 W/m ² 80 °C B.P.T.	No loss of breaking or tearing strength	

¹ Aging conditions are 28 days at 240 °F (116 °C) equivalent to 400 days at 176 °F (80 °C) for breaking strength, elongation, tearing strength, ozone and puncture resistance

² Approximately equivalent to 14,000 hours exposure at 0.35 W/m² irradiance B.P.T. is black panel temperature

Supplemental approvals, statements and characteristics

Skellerup Viking Enviroclad meets or exceeds the requirements of ASTM D6878¹ Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing

Radiative Properties

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

	Test Method	White	Tan	Grey
ENERGY STAR initial solar reflectance	Solar Spectrum Reflectometer	0.87	0.68	n/a
ENERGY STAR solar reflectance after 3 years	Solar Spectrum Reflectometer (after cleaning)	0.83	0.64	n/a
CRRC initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	pending	pending
CRRC initial thermal emittance	ASTM C1371	0.90	0.86	0.90
CRRC thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	pending	pending
LEED thermal emittance	ASTM E408	0.95	0.95	0.95
SRI (Solar Reflectance Index)	ASTM E1980	110	88	55

An ENERGY STAR compliant low slope roof product must have an initial solar reflectance of at least 0.65 and a 3 year aged solar reflectance of at least 0.50. Cleaning of the aged roof surface is permitted by the ENERGY STAR test protocol.

The Cool Roof Rating Council (CRRC) does not specify minimums for reflectance or emittance but they do require specific protocols for testing and reporting. Cleaning of the aged roof surface is not permitted for determination of radiative properties after 3 years.

A LEED “point” may be earned if a roof material is ENERGY STAR qualified and has a thermal emittance of at least 0.90 as determined by ASTM E408.

California Title 24 requires an initial minimum reflectance of 0.70 and emittance of 0.75 as determined by CRRC test protocol.

Solar Reflectance Index (SRI) is calculated per ASTM E 1980. The SRI is a measure of the roof’s ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values, and particularly cool materials can even exceed 100.