

# Viking FleeceBACK (FBS) Enviroclad TPO Membrane System

Viking Roofspec Supplier Code: STP204 (GREY) & STP205 (WHITE)

Version: EVF-PDS-V1.0

## **Introduction:**

This Data Sheet is to serve as a reference guide for Viking Roofspec Licensed Installers who are already familiar with Viking Roofspec's systems. The following guide contains precautions, best uses and application procedures for the correct installation of Viking FBS Enviroclad TPO Membrane System

Enviroclad FleeceBACK TPO membranes are manufactured using a hot-melt extrusion process for complete scrim encapsulation. Once the TPO is reinforced and enhanced with fleece, the total sheet thicknesses available is 2.52mm, creating a very tough, durable, and versatile sheet that is ideal for re-roofing or new construction projects.

FleeceBACK TPO sheets are chlorine free and plasticizer free with excellent chemical resistance to acids, bases, restaurant oils, and greases. All FleeceBACK TPO membranes utilise Octaguard XT™ weathering package technology to withstand extreme durability testing intended to simulate exposure to severe climates. Enviroclad FleeceBACK TPO's advanced polymerization technology combines the flexibility of ethylene-propylene (EP) rubber with the heat weldability of polypropylene.

FleeceBACK TPO membranes are intended to be used with adhered or mechanically fastened roofing systems. FleeceBACK TPO is ideally suited for roof garden and solar panel applications and projects demanding superior wind uplift resistance due to its added toughness and durability. FleeceBACK TPO is also a great solution for buildings requiring low noise and odours during roofing application. FleeceBACK Enviroclad TPO membrane can be adhered directly to new substrates of plywood, steel, concrete or to existing roofing substrates such as timber sarking or existing membranes or substrate containing bitumen.

FleeceBACK Enviroclad TPO membrane is adhered to substrates using Flexible FAST Adhesive on the main field areas and upstands, with alternative adhesion to upstand areas only, using Viking Cav-Grip III Low VOC.

## **Properties**

Product Code	Description	Colour	Thickness + Fleece	Width	Length	Weight
STP204	Enviroclad FBS	Grey	2.52mm	3.6m	30.4m	175KG
STP205	Enviroclad FBS	White	2.52mm	3.6m	30.4m	175KG

Enviroclad TPO Membrane Colour	Light Reflectance Values (L.R.V)	Solar Reflectance Index (SRI)
White	87.63%	99% *(85%)
Grey	32.70%	53% *(48%)

FleeceBACK (FBS) Enviroclad TPO Membrane Typical Properties and Characteristics			
Physical Property	Test Method	SPEC. (Min.)	FleeceBACK TPO Typicals
Tolerance on Nominal Thickness, %	ASTM D751	±10	±10
Thickness over Fleece, min 2.54 mm			1.14mm
Weight			1.6kg kg/M <sup>2</sup>
Breaking Strength, min, lbf (kN) 2.54 mm	ASTM D751 Grab Method	220 (1)	350 (1.6)
Elongation at break of internal fabric, %	ASTM D751	15	25
Tearing Strength, min, lbf (N) 2.54mm	ASTM D751 B Tongue Tear	55 (245)	100 (445)
Puncture Resistance, Joules 2.54mm	ASTM D5635	—	17.5
Puncture Resistance, lbf 2.54mm	FTM 101C Method 2031	350	450
Brittleness point, max, °C	ASTM D2137	-40	-46
Linear Dimensional Change, %	ASTM D1204	± 1 max	-0.2 typical
Field Seam Strength, lbf/in. (kN/m) ASTM D1876 tested in peel 2.54mm	ASTM D1876	25 (4.4)	50 (8.8)
Water Vapor Permeance, Perms	ASTM E96 Proc B	—	0.10 max 0.05 typical
Resistance to Microbial Surface Growth, Rating (1 is very poor, 10 is no growth)	ASTM D3274	—	9-10 typical
Properties after heat aging— ASTM D573, 670 hrs. at 240 °F Breaking strength, % retained Elongation reinf. % retained Tearing Strength, % retained Weight Change, %	ASTM D573	— — — —	90 min 90 min 60 min ± 1.0 max
Ozone Resistance 100 pphm, 168 hours	ASTM D1149	No cracks	No cracks
Resistance to Water Absorption After 7 days immersion @ 158°F (70°C) Change in mass, max, % (one side)	ASTM D471	± 3.0	0.90
Resistance to Outdoor (Ultraviolet) Weathering Xenon-Arc, total radiant exposure at 0.70 W/m <sup>2</sup> irradiance, 80°C black panel temp. 2.54mm	ASTM G155	No cracks No loss of breaking or tearing strength	No cracks No loss of breaking or tearing strength 17,640 kj/m <sup>2</sup>

**Features and Benefits**

- Superior wind uplift performance and ratings (up to an FM 1-990) due to a mechanical bond between fleece and adhesive
- Combination of FleeceBACK TPO membrane with Flexible FAST adhesive increases puncture resistance up to 50% compared to traditional competitive low-rise adhesives.
- 75% fewer seams than Modified Bitumen Sheet Membranes
- Fleece reinforcement adds toughness, durability, and enhanced puncture resistance 2.52mm membrane delivers 33% greater puncture resistance and 33% greater breaking strength than 1.52mm TPO. Fleece backing provides 30% greater puncture resistance than standard membrane.
- Flexible FAST Adhesive offers elongation properties up to 150%
- Excellent hail damage resistance
  - Passes FM's severe hail test.
  - Passes UL-2218 Class 4 rating.

**Installation**

1. The surface to which adhesive is to be applied must be dry and free of protrusions, sharp edges, loose and foreign materials, oil, and grease. Depressions greater than 6 mm shall be filled with Flexible FAST Adhesive or other approved patching material. All sharp projections shall be removed. Previously unexposed asphalt must be primed with CAV-GRIP III, and old exposed bitumen (oil in membrane is exposure / bleeding) use Bleed Trap
2. Apply Flexible FAST Adhesive when the substrate and ambient temperatures are 15°C or above. Keep Cartridges stored for use between 20°C – 30°C. Keep Cartridges out of direct sunlight as adhesive may expand within the cartridge due to overheating.
3. Apply FAST Adhesive in ribbons at 150mm – 300mm on centre.
4. Use 150mm centres within 1.2mt - 5.4mt from all roof perimeters such as roof edges, gutters, parapets, pop-ups, skylights and large penetrations. \*Refer Ribbon centres: Extruded Wet Bead of 15mm

Note: use Viking Flexible FAST Adhesive PDS STP900b in conjunction

**FleeceBACK Installation****Barn Door Method:**

1. Unroll FleeceBACK sheet and position. Fold sheets in half width wise and bond one sheet at a time.
2. Apply FAST Adhesive to the substrate in ribbons at 150 – 300mm on centre with a minimum 15mm wet bead achieving a light-blue coloured foam. \*Refer Ribbon centres: Extruded Wet Bead of 15mm.
  1. Apply adhesive to 2Lm of length (3.6mt width membrane) for approx. 7m<sup>2</sup> Cartridge set coverage.
  2. Allow adhesive to rise and develop “string/body” (approx. 1–2 minutes), then place Fleeceback membrane into FAST Adhesive. String time will vary based on environmental conditions like temperature and humidity.
  3. As soon as membrane is set, roll membrane with a 70 kg weighted roller to ensure fleece embedment. If adhesive contaminates the splice / lap area, immediately remove with Weathered Membrane Cleaner.

July 2023

## PRODUCT DATA SHEET

### Detailing:

- Side laps: full rolls have a salvage edge without Fleece-backing to allow ease of side lap welding.
- Butt laps: Head to Tail laps: Butt FBS sheet ends (no greater than 25mm gap). Clean and Weld with 150mm wide overlay strip of naked 1.52mm Enviroclad, using Clear Cut Edge Sealer or bleed edge to seal scrim at all cut edges or penny roll the cut edge.
- External / Internal Corners Methodology: Remove Fleece 40mm from edge, pull back, scrape clean with Linbide scraper, singe balance with Hot air welder and then clean residue with Membrane Cleaner for clean 40mm weld. Follow detailing for regular Enviroclad TPO

### Precautions

- Review the Material Safety Data Sheet for complete safety information prior to use.
- Use with adequate ventilation. Avoid breathing vapours. Wear an approved respirator for organic vapours with prefilters and solvent resistant cartridges. If vapour inhaled, remove to fresh air, and administer oxygen if breathing is difficult. Consult a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are required.
- If Flexible FAST adhesive is splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wear long-sleeved shirts and long pants. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water.
- Permeation-resistant gloves are required when handling the material or during application.
- KEEP OUT OF THE REACH OF CHILDREN.

### Storage

Handling and storage of all materials whether on or off site is under the control of the Viking Roofspec Licensed and Trained Installers. Dry storage must be provided for all products, do not let rolls get crushed under weight of stacking pallets on top of each other.

### Notes

EXTREME Testing for Severe Climates ASTM Standard D6878 is the material specification for Thermoplastic Polyolefin-Based Sheet Roofing. It covers material property requirements for TPO roof sheeting and includes initial and aged properties after heat and xenon-arc exposure. As stated in the scope of the standard.

Maximum performance requires the membrane to far exceed the requirements of ASTM D6878. Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials. Q-Trac testing combines accelerated weathering with real-world conditions using an array of ten mirrors to reflect and concentrate full spectrum sunlight onto membrane test specimens. The Q-Trac device automatically tracks the sun's path from morning to night. Also, it adjusts to compensate for seasonal changes in the sun's altitude. Eight years in Q-Trac testing is equal to 40 years of real-world exposure. Carlisle requires its Sure-Weld TPO membranes to pass the equivalent of 40 years of exposure in the Q-Trac.

#### Auckland office

80 Alexander Crescent,  
Otara PO Box 14-541,  
Panmure, Auckland  
1741, New Zealand

#### Christchurch office

2 Nazareth Avenue,  
Middleton, PO Box  
9117, Tower Junction  
Christchurch 8149,  
New Zealand

#### Wellington office

19 Pretoria St,  
Lower Hutt 5010,  
New Zealand

T: 0800 729 799

F: 0800 729 788

[info@vikingroofspec.co.nz](mailto:info@vikingroofspec.co.nz)

[www.vikingroofspec.co.nz](http://www.vikingroofspec.co.nz)

A division of Viking Group Limited