DURO-TECH™ TPO FLEECE 100-MIL (45-MIL) MEMBRANE

DESCRIPTION:

Duro-TECH™ TPO Fleece 100-Mil (45-Mil) ("TPOF100") is a flexible thermoplastic polyolefin ("TPO") roofing membrane made for use in Duro-TECH TPO roofing systems. TPOF100 meets or exceeds all requirements for ASTM D6878.

TPOF100 is available as roll goods. A complete line of custom-fabricated accessories and parapets are available for use with TPOF100.

In addition to the fleece, TPOF100 is a TPO membrane which incorporates a polyester reinforcement fabric (weft-inserted scrim) within TPO films to provide exceptional strength and waterproofing.

TPO products are not compatible with PVC products.

TPO Film – Proprietary TPO formulation of resins, thermal, and UV stabilizers, and flame retardants.

- TPO film above scrim – 21 mil (0.53 mm).

Weft-Inserted Scrim – A 9 x 9 polyester fabric construction with weft insertion, provides superior tear and puncture resistance. The polyester thread is treated to prevent wicking.

Fleece – The 8 oz/yd^2 (0.27 kg/m^2) needle-punched polypropylene fleece provides excellent properties for adhering to, or mechanically fastening over, a variety of substrates. Each roll of membrane has one selvage edge where the fleece is held back 2.25 inches (57.2 mm) to provide for hot-air welding to the underlying membrane.

Total Thickness – 45 mil (1.14 mm), nominal.

Overall Thickness (with Fleece) –100 mil (2.54 mm), nominal.

Weight – 0.27 lb/ft^2 (1.32 kg/m^2)

Colors – White, tan, and gray.

ROLL PROPERTIES		
Dimensions ft (m)	**Approximate Coverage (3-In. (76.2-mm) Overlap) ft^2 (m^2)**	**Approximate Weight lb (kg)**
10 x 100 (3 x 30.5)	971 (90.2)	270 (122.47)

Overlap Line – A line, 6 inches (152.4 mm) from the edge of the sheet, is factory-applied to the top of the sheet to assist in maintaining proper overlap between sheets.

ENERGY EFFICIENCY:

White TPOF100 is an excellent product for complying with California Title 24, LEED®, and other energy efficiency programs requiring the use of a highly reflective roof membrane.

COOL ROOF RATING COUNCIL (CRRC)							
Colors	**CRRC ID**	**Solar Reflectance**		**Thermal Emittance**		**Solar Reflective Index (SRI)**	
		Initial	3-yr	Initial	3-yr	Initial	3-yr
White	P[1]	0.80	0.70	0.78	0.81	97	84
Tan	P[1]	0.73	0.66	0.90	0.91	90	81
Gray	P[1]	0.34	0.34	0.89	0.88	37	36

[1] Pending

LEED-NC & LEED-EB CREDITS – White TPOF100 membrane alone can obtain one credit in either U.S. Green Building Council's LEED-NC or LEED-EB programs. In combination with other design criteria, the membrane may help attain many other credits.

LEED-NC Credit Category	Duro-TECH Attribute
Sustainable Sites Heat Island Reduction	Solar Reflective Index (SRI) = 97

LEED-EB Credit Category	Duro-TECH Attribute
Sustainable Sites Heat Island Reduction	Solar Reflective Index (SRI) = 97

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WARRANTY:

The following warranties are available for projects utilizing TPOF100. Contact Duro-Last for warranty details.

AVAILABLE DURO-TECH 45-MIL WARRANTIES	
PRODUCT	**15-YEAR**
SUPREME	NOT APPLICABLE FOR THIS PRODUCT
ULTRA	P[1]
BASIC	P[1]
RESIDENTIAL	P[1]

[1] Pending

CODES AND STANDARDS:

Underwriters Laboratories (US)[1], NEMO CERT Evaluation Report[1], FM Approvals[1], State of Florida[1], Miami-Dade County[1], Texas Department of Insurance (TDI)[1].

[1] Pending

STORAGE:

Keep away from ignition sources.

Store rolls lengthwise on pallets. Use tarps to keep rolls dry.

MEMBRANE ATTACHMENT:

Adhered – TPOF100 may be adhered to a variety of roof decks, walls, insulations, or cover boards. It may be adhered directly to an existing built-up roof (“BUR”) by using approved membrane adhesives. Adhesion pull tests are required prior to adhering to BUR. The tests must be performed on a 1- x 1-ft (0.3- x 0.3-m) area and receive minimum values of 150 lb/ft^2 (732.36 kg/m^2). Refer to the Duro-TECH TPO Adhered Roofing System Specification for system requirements.

Mechanically Fastened – TPOF100 may be mechanically fastened to a variety of roof deck and wall materials. An appropriate slip sheet, insulation or cover board may be required. Refer to the Duro-TECH TPO Mechanically Fastened Roofing System Specification for system requirements.

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PHYSICAL PROPERTIES:

TPOF100 has been subjected to the tests required by ASTM D6878 “Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing”. The results of each test are listed below. ASTM’s Overall Thickness requirements for the membrane are plus or minus 10% (nominal) of the listed Typical Value.

PHYSICAL PROPERTIES				
Physical Property	**Test Method**	**ASTM D6878 Requirement**	**Result**	**Typical Value**
Overall Thickness	ASTM D751	≥ 40.50 and ≤ 49.50 mil (≥ 1.03 and ≤ 1.26 mm)	PASS	45 mil (1.14 mm) nominal
Thickness Over Scrim	ASTM D7635	≥ 15 mil (≥ 0.38 mm)	PASS	21 mil (0.53 mm)
Breaking Strength	ASTM D751 grab method	≥ 220 lbf (≥ 978.6 N)	PASS	340 lbf (1,512.4 N)
Elongation at Reinforcement Break	ASTM D751 grab method	≥ 15%	PASS	25%
Tear Strength	ASTM D751	≥ 55 lbf (≥ 244.7 N)	PASS	120 lbf (533.8 N)
Brittleness Point	ASTM D2137	Must pass at -40° F (-40° C)	PASS	PASS
Ozone Resistance, No Cracks	ASTM D1149	PASS (no cracks)	PASS	PASS
Properties After Heat Aging (Retained Values) ASTM D573 – 5,376 Hours (224 Days or 32 Weeks) at 240° F (115.6° C)				
Breaking Strength	ASTM D751 grab method	90% min	PASS	> 90%
Elongation at Reinforcement Break	ASTM D751 grab method	90% min	PASS	> 90%
Tear Strength	ASTM D751	60% min	PASS	> 60%
Weight of Change	–	± 1% max	PASS	< 1%
Linear Dimension Change	ASTM D1204 6 hours at 158° F (70° C)	± 1% max	PASS	< 1%
Water Absorption	ASTM D471	± 3% max	PASS	< 3%
Weather Resistance	ASTM G155 176° F (80° C) Black Panel, no cracking, crazing when wrapped around a 3-inch (76.2-mm) mandrel and inspected at 7X magnification	10,800 kJ/m^2 min	PASS	> 60,000 kJ/m^2
Puncture	FTM 101C method 2031	–	–	–
Dynamic Puncture	ASTM D5635	–	PASS	55 J
Static Puncture	ASTM D5602	–	PASS	55 lb (24.95 kg)
Air Permeance (Material)	ASTM E2178	0.004 ft^3/ft^2 max (0.02 L/(s*m^2)	PASS	PASS

APPROVALS:

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