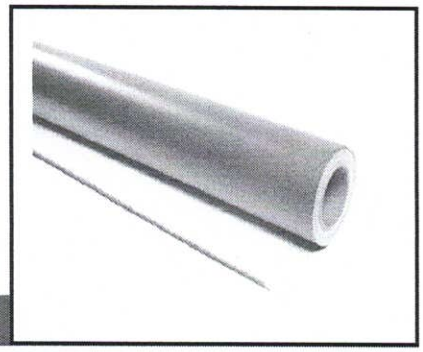
Firestone
Firestone Building Products

TECHNICAL INFORMATION SHEET

UltraPly™ TPO Membrane

Item Description
1 Roll

Item Number
Various



Meets or exceeds ASTM D 6878.

Product Information

Description:

Firestone UltraPly TPO is a flexible Thermoplastic Polyolefin roofing membrane that is produced with polyester weft-inserted reinforcement. UltraPly TPO membrane meets or exceeds all requirements for ASTM D 6878 Specification. This heat weldable TPO membrane is available in 45 mil (1.14 mm) and 60 mil (1.52 mm) thicknesses. This reflective membrane is suitable for a variety of low-slope applications.

Method of Application:

1. Substrates must be clean, dry, smooth, and free of sharp edges, fins, loose or foreign materials, oil, grease, and other materials that may damage the membrane.
2. All rough surfaces that can damage the membrane shall be repaired as specified to offer a smooth substrate.
3. All surface voids greater than ¼" (6.3 mm) wide shall be properly filled with an acceptable fill material.
4. Firestone UltraPly TPO membrane is installed as continuous roofing or waterproofing layer on the roof. Rolls are overlapped (side laps and end laps) prior to heat welding the seam areas.
5. Install the UltraPly TPO Roofing System in accordance with current Firestone UltraPly TPO specifications, details and workmanship requirements.

Storage:

- Store away from sources of punctures and physical damage.
- Assure that structural decking will support the loads incurred by material when stored on rooftop. The deck load limitations should be specified by the project designer.
- Store away from ignition sources as membrane will burn when exposed to open flame.

Precautions:

- Refer to Safety Data Sheets (SDS) for safety information.
- Exercise caution when lifting, moving, transporting, storing or handling membrane rolls to avoid sources of punctures and possible physical damage.
- Contact your Building Systems Advisor at 1-800-428-4511 for specific recommendations regarding chemical or waste product compatibility with Firestone UltraPly TPO Membrane.

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Typical Properties (Meets or exceeds ASTM D 6878 Specification)

Property	ASTM Standard	Performance Minimum	Typical Performance 45 mil	Typical Performance 60 mil
Overall Thickness	D 751	0.039" (1 mm)	0.045" (1.14 mm) ± 10%	0.060" (1.52 mm) ± 10%
Coating over Scrim	D 7635	0.015" (0.38 mm)	0.017" (0.43 mm)	0.021" (0.53 mm)
Breaking Strength	D 751, Grab Method	220 lbf (979 N)	340 lbf (1,512 N)	390 lbf (1,735 N)
Elongation of Reinforcement Break	D 751, Grab Method	15%	25%	25%
Tearing Strength	D 751	55 lbf (245 N)	120 lbf (534 N)	120 lbf (534 N)
Brittleness Point	D 2137	-40 °F (-40 °C)	Pass	Pass
Ozone Resistance, No Cracks	D 1149	Pass (No Cracks)	Pass	Pass
Properties After Heat Aging (Retained Values) ASTM D 573-5376 h (224 days or 32 weeks) at 240 °F (116 °C)				
Breaking Strength	D 751, Grab Method	90% Minimum	> 90%	> 90%
Elongation at Break	D 751, Grab Method	90% Minimum	> 90%	> 90%
Tearing Strength	D 751	60% Minimum	> 60%	> 60%
Weight of Change		± 1% Maximum	< 1%	< 1%
Linear Dimension Change	D 1204, 6 h at 158 °F (70 °C)	± 1% Maximum	< 1%	< 1%
Water Absorption:	D 471	± 3% Maximum	< 3%	< 3%
Weather Resistance, 176 °F (80 °C) Black Panel, no cracking, crazing when wrapped around a 3" (76.2 mm) mandrel and inspected at 7X magnification	G 155	10,800 kJ/m² Minimum	> 60,000 kJ/m²	> 60,000 kJ/m²
Puncture Resistance	FTM 101C, Method 2031	---	265 (1,180)	300 (1,300)
Dynamic Puncture Resistance MD	D 5635	---	Pass (20 J)	Pass (40 J)
Dynamic Puncture Resistance CD	D 5635	---	Pass (35 J)	Pass (50 J)
Static Puncture Resistance	D 5602	---	Pass (25 kg)	Pass (25 kg)
Air Permeance (Material)	E 2178*	< 0.004 ft³/ft² (0.02 L/(s*m²)	Pass	Pass

1. The ASTM 2178 values listed above are for the air permeance of the UltraPly TPO Membrane component only.
2. When system design includes an air barrier, please consult your Firestone Technical Services Advisor for additional roof system securement enhancements.
3. Consult the Designer / Architect, Code Agency or Authority having Jurisdiction (AHJ) for requirements regarding the selection and use of an appropriate air barrier material, and its installation into the building envelope.

Product Sizes

Membrane Thickness: 0.045" (1.14 mm) **Membrane Weight:** 0.23 lb/ft² (1.1 kg/m²)		**Membrane Thickness:** 0.060" (1.52 mm) **Membrane Weight:** 0.31 lb/ft² (1.5 kg/m²)	
Available Sizes	**Available Colors**	**Available Sizes**	**Available Colors**
5' x 100' (1.5 x 30.5 m)	White, Tan, Gray	5' x 100' (1.5 x 30.5 m)	White, Tan, Gray
5' x 200' (1.5 x 61 m)	White	5' x 200' (1.5 x 61 m)	White
6' 2" x 100' (1.9 x 30.5 m)	White, Tan, Gray	6' 2" x 100' (1.9 x 30.5 m)	White, Tan, Gray
8' x 100' (2.4 x 30.5 m)	White, Tan, Gray	8' x 100' 2.4 x 30.5 m)	White, Tan, Gray
8' x 200' (2.4 x 61 m)	White	8' x 200' (2.4 x 61 m)	White
10' x 100' (3.0 x 30.5 m)	White, Tan, Gray	10' x 100' (3.0 x 30.5 m)	White, Tan, Gray
10' x 200' (3.0 x 61 m)	White	10' x 200' (3.0 x 61 m)	White
12' 4" x 100' (3.8 x 30.5 m)	White, Tan, Gray	12' 4" x 100' (3.8 x 30.5 m)	White, Tan, Gray
12' 4" x 200' (3.8 x 61 m)	White	12' 4" x 200' (3.8 x 61 m)	White

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Radiative Properties				
Cool Roof Rating Council (CRRC): Initial / 3 year	**White**	**Tan**	**Light Tan*** *(HR)*	**Gray**
Solar Reflectance	0.79 / 0.69	0.61 / 0.55	0.73 / 0.63**	0.34 / 0.34
Thermal Emittance	0.85 / 0.83	0.81 / 0.84	0.90 / 0.90**	0.89 / 0.88
Solar Reflectance Index (SRI)	98 / 83	71 / 63	90 / 77**	37 / 36
Rated Product ID	0008	0015	TBD	0032
Licensed Manufacturer ID	0608	0608	TBD	0608
Classification	Production Line	Production Line	Production Line	Production Line
ENERGY STAR®: Initial / 3 yr	**White**			
Solar Reflectance	0.79 / 0.68*	---	---	---
Thermal Emittance	0.85 / 0.83			
* White membrane sample cleaned prior to age test.				
LEED®	**White**			
Initial Solar Reflectance Index (SRI)	Pass (98)	---	---	---
3 year Aged Solar Reflectance Index (SRI)	Pass (83)			

*Light Tan data determined by testing conducted by PRI Construction Materials Technologies LLC
**Rapid Ratings Results

LEED® Information:

Post-Consumer Recycled Content: 0%
Post Industrial Recycled Content: 15%
Manufacturing Location: Wellford, SC; Tuscumbia, AL

NOTE: LEED® is a registered trademark of the U.S. Green Building Council

FM APPROVED | CLASSIFIED C UL US | CCMC EVALUATION 13348-L | MIAMI-DADE COUNTY APPROVED | CRRC COOL ROOF RATING COUNCIL CHARTER MEMBER | ICC-ES/ESR-2831

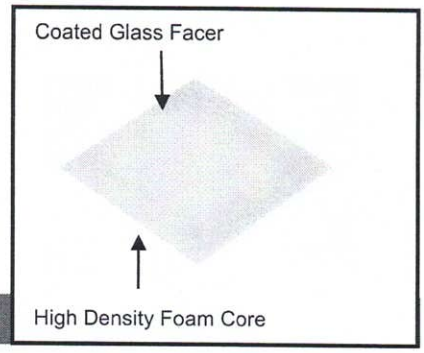
Please contact Firestone Technical Services at 1-800-428-4511 for further information.

This sheet is meant to highlight Firestone products and specifications and is subject to change without notice. Firestone takes responsibility for furnishing quality materials which meet published Firestone product specifications. Neither Firestone nor its representatives practice architecture. Firestone offers no opinion on and expressly disclaims any responsibility for the soundness of any structure. Firestone accepts no liability for structural failure or resultant damages. Consult a competent structural engineer prior to installation if the structural soundness or structural ability to properly support a planned installation is in question. No Firestone representative is authorized to vary this disclaimer.

ISOGARD™ HD Cover Board

(New Formulation)

Item Description	Item Number
ASTM C1289 Type II, Class 4, Grade 1	
4' x 4' (1.2 m x 1.2 m)	W8H8GG050I (Half Bundle)
4' x 8' (1.2 m x 2.4 m)	W8H8GG050H (Half Bundle)
ASTM C1289 Type II, Class 4, Grade 2	
4' x 4' (1.2 m x 1.2 m)	W8H3GG050I (Half Bundle)
4' x 8' (1.2 m x 2.4 m)	W8H3GG050H (Half Bundle)



Product Information

Meets or exceeds performance requirements and recommendations of ASTM C 1289, Type II, Class 4

Description:

Firestone ISOGARD HD Cover Board is a half-inch (12.7 mm) thick polyiso with insulating properties. It has a high density, closed-cell, polyisocyanurate foam and coated glass facers. Firestone ISOGARD HD Cover Board provides a high thermal performance when compared to other high density insulations or cover boards.

All Firestone polyisocyanurate insulations use EPA accepted blowing agents. Firestone ISOGARD HD Cover Board with ISOGARD foam technology incorporates a HCFC-free blowing agent that does not contribute to the depletion of the ozone layer (ODP-free).

Code Approvals:

FM4470, UL 790, UL Classified

Method of Application:

Insulation shall be neatly fitted to all roof penetrations, projections and nailers. No more insulation shall be installed than can be covered with membrane and completed before the end of each day's work or before the onset of inclement weather.

Firestone ISOGARD HD Cover Board can be applied over:

- existing roof surfaces
- under fully adhered or mechanically attached Single-Ply
- Modified Bitumen systems applied in Multi-Purpose MB Cold Adhesive and BASEGARD™ SA base sheets with a torch applied cap or SBS sand backed cap sheet in hot asphalt

ISOGARD HD Cover Board must be installed using Firestone Fasteners and Plates or one of the following Firestone insulation adhesives:

- I.S.O. Twin Pack™
- I.S.O.Stick™
- Twin Jet
- I.S.O. Spray™ R
- I.S.O. FIX™ II

Storage:

Keep insulation dry at all times.

Precautions:

- Elevate insulation above the deck or ground.
- Combustible. Refer to SDS for more information.
- Do not install over wet, damp or uneven substrates.
- Do NOT install when wet.
- Do NOT torch apply membranes to ISOGARD HD cover boards
- Do NOT use hot asphalt to attach or apply asphalt roofing systems to ISOGARD HD cover boards

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ISOGARD™ HD Cover Board

(New Formulation)

LEED® Information:

Recycled Content: approximately 9%*
**Contains post industrial recycled content.*

Manufacturing Locations: Corsicana, TX Youngwood, PA Jacksonville, FL
DeForest, WI Florence, KY Bristol, CT

Manufactured in an ISO 9000 Registered Facility
FM Global Approved when applied with the fastening pattern shown.
*NOTE: LEED® is a registered trademark of the U.S. Green Building Council.

ASTM C1289 Type II, Class 4

Typical Properties

Property	ASTM Standard	Typical Values	
Compressive Strength			
Grade 1	D1621	≥ 80 psi (≥ 551 kPa)	
Grade 2	D1621	≥ 120 psi (≥ 827 kPa)	
Weight	---	4' x 4' (1.2 m x 1.2 m)	4' x 8' (1.2 m x 2.4 m)
Grade 1		5.5 lb (2.5 kg)	11 lb (5 kg)
Grade 2		6 lb (2.7 kg)	12 lb (5.4 kg)
Dimensional Stability	D2126	<0.5%	
Water Absorption	C209	<3%	
Service Temperature	---	-100 to 250 °F (-73 to121 °C)	
Resistance to Mold	D3273	pass	
Flute Span over metal decks	---	2.625" (66.7 mm)	
Flame Spread	E84	50	
Smoke Developed	E84	160-180	
Thermal Resistance	C518	2.5 R	

Acceptable Substrates

Property	NOTE
Structural Concrete, 3000 psi (New & Existing)	Please consult Membrane Design Guides on line at www.firestonebpco.com to review specific information regarding fastener types appropriate for the type of deck and insulation in use.
Steel, min. 22 gauge	
Lightweight Concrete*	
Plywood and OSB, min. ½"	
Gypsum, min. 2"	
NOT ACCEPTABLE	Do not use hot asphalt to adhere ISOGARD HD cover boards. Firestone ISOGARD HD cover board is not suitable as an immediate substrate for a ballasted roof system.

** A vapor retarder is required to be installed under systems with insulation. A properly prepared, existing, dry and sound, uninsulated built-up roof system (all splits and blisters repaired) can be used as a vapor retarder.*

NOTE: Be sure to use the required fastener for an FM approved system.

Please contact Firestone Technical Services Department at 1-800-428-4511 for further information.