CARLISLE SYNTEC SYSTEMS

GeoTough™ EPDM
Geosynthetic Membrane

Overview

Carlisle's GeoTough EPDM Geosynthetic Membrane is a nominal 45-mil and 60-mil thick non-reinforced Ethylene Propylene Diene Terpolymer (EPDM) based elastomeric waterproofing liner for use in recreational, commercial aquaculture and industrial water containment applications. The membrane is specifically formulated for long-term use in buried or exposed geomembrane applications. GeoTough EPDM has been formulated to be compatible with aquatic life. It is recommended that customers test GeoTough EPDM before use to ensure it is compatible with the specific aquatic species for the proposed application. GeoTough EPDM has a wide variety of applications including the lining of agricultural waste water containment, commercial and industrial reservoirs, catch basins, stormwater retention ponds, canals and aquaculture, including fish hatcheries.

Features and Benefits

- Superb elongation and lay flat characteristics
- Excellent low temperature impact resistance
- Exceptional resistance to solar UV, ozone, and oxidation
- Low water vapor permeance and water absorption
- Quick seaming process - no specialized or expensive tools required
- 20-year material warranty available
- Large prefabricated panels available in custom sizing
- Unmatched J-Tear protection

Installation

Installation procedures vary as to the type of application employed and the specific job requirements. When installed correctly, it is difficult to find a more efficient water barrier. Surfaces on or against where GeoTough EPDM membrane is to be applied must be smooth, free of fins, sharp edges, loose and foreign materials, oil and grease. GeoTough EPDM can be easily repaired in the field by the owner without specialized tools or training. Consult current specifications and details for complete installation information.

J-Tear Protection:

Amongst top competitors, Carlisle's GeoTough EPDM membranes are the only brand that will give you the added benefit of consistent J-Tear protection. When the J-Tear test is successful the sheet will tear in the direction of the cut for a short distance and then it will change direction and attempt to curve back on itself --- as it does with Carlisle's GeoTough EPDM membrane.

This direction change is important during the membrane installation process. As the installer works around protrusions, the J-tear stops the membrane from tearing as they install the sheet.

Review Carlisle specifications and details for complete installation information.

Sizes Available

	45-mil	60-mil
Width	5–50 feet (1.5 - 15.2 meters)	5–50 feet (1.5 - 15.2 meters)
Length	50–200 feet (15.2 – 61 meters)	50, 100, 150 feet (15.2, 30.5, 45.7 meters)
Weight	0.28 lbs/f^2 (1.37 kg/m^2)	0.37 lbs/f^2 (1.81 kg/m^2)
Specific Gravity	1.19 g/cc	1.19 g/cc

SCAN HERE TO WATCH THE J-TEAR TEST COMPARISON VIDEO

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Typical Properties and Characteristics

Physical Property	Test Method	Minimum Properties English		Minimum Properties Metric	
		45 mil	60 mil	1.14 mm	1.52 mm
Thickness Tolerance	ASTM D412	45 mils ± 10%	60 mils ± 10%	1.14 mm ± 10%	1.52 mm ± 10%
Break Strength	ASTM D412	1305 PSI	1305 PSI	9.0 MPA	9.0 MPA
Break Elongation	ASTM D412	300%	300%	300%	300%
Tear Strength min.	ASTM D624	150 lbf/in	150 lbf/in	26.3 kN/m	26.3 kN/m
Puncture Resistance	ASTM D4833	30 lbs.	35 lbs.	125 N	155 N
J-Tear	ASTM D-624 Die T	Pass	Pass	Pass	Pass
Brittleness Temperature max.	ASTM D2137	-49 °F	-49 °F	-45 °C	-45 °C
Water Vapor Permeance max.	ASTM E96 (Proc. B or BW)	0.03 (Typ.) 0.045 (Max.)	0.03 (Typ.) 0.045 (Max.)	0.03 (Typ.) 0.045 (Max.)	0.03 (Typ.) 0.045 (Max.)
Resistance to Water Absorption after 7 d immersion @ 158 °F (°C), max.	ASTM D471	+8.0 % -2.0 %	+8.0 % -2.0 %	+8.0 % -2.0 %	+8.0 % -2.0 %
Resistance to Heat Aging (Properties after 670 hours @ 240° F (116° C))					
1. Tensile Break Strength	ASTM D573	1205 PSI	1205 PSI	8.3 mPa	8.3 mPa
2. Elongation, ultimate min.	ASTM D412	200%	200%	200%	200%
3. Tear Strength	ASTM D624	125 lbf/in	125 lbf/in	21.9 kN/m	21.9 kN/m
Multiaxial Elongation	ASTM D5617	100%	100%	100%	100%
Dimensional Stability 168 hrs, 212 °F (100 °C)	ASTM D1204	0.75% ±1.0%	0.75% ±1.0%	0.75% ±1.0%	0.75% ±1.0%
Ozone Resistance Condition after exposure to 100 pphm ozone in air for 168 hrs @ 140°F (40°C) sample under 50% strain)	ASTM D1149	No Cracks	No Cracks	No Cracks	No Cracks
Resistance To Outdoor (Ultraviolet) Weathering[1], Xenon-Arc, 10,080 kJ/m^2 exposure @ 80°C (176°F) Black panel temperature, visual examination 7X magnification	ASTM G155	No Cracks	No Cracks	No Cracks	No Cracks
Toxicity to Fish	ASTM E729(96) (modified)	Passes	Passes	Passes	Passes
Whole Effluent Toxicity Testing	EPA 600/4-89/001 Method 1000	Tested	Tested	Tested	Tested
Shore A Durometer	ASTM D2240	60±10	60±10	60±10	60±10
Factory Seam Strength	ASTM D-816	Sheet Failure	Sheet Failure	Sheet Failure	Sheet Failure

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.

[1]Approximately equal to 8,000 hours at 0.35W/m^2 irradiance.

A two week minimum lead time will be necessary when ordering Carlisle GeoEPDM that is certified to meet the ASTM D-7465 requirements for Type I sheeting.

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