

GEOMEMBRANE LINER
ENGINEERING SPECIFICATION GUIDE



POLYPROPYLENE Reinforced Geomembrane

| Physical Property | Test Method | Property of Unaged Sheet | Property After Aging 30 days @ 185°F |
|---|--|---|--|
| Tolerance on nominal thickness, % | ASTM D 5199 | ± 10 | |
| Thickness over scrim, in (mm) | | | |
| 36-mil | ASTM D 4637 | 0.010 (0.254) min | |
| 45-mil | Optical Method | 0.013 (0.330) min | |
| 60-mil | | 0.018 (0.457) min | |
| Mass per unit area, lb/ft ² (g/ft ²) (kg/m ²) | | | |
| 36-mil | ASTM D 5261 | 0.17 (77) (0.83) typical | |
| 45-mil | | 0.21 (95) (1.03) typical | |
| 60-mil | | 0.29 (132) (1.42) typical | |
| Breaking strength, lbf (kN) (grab tensile at strain rate of 12 in./min.) | ASTM D 751 Grab Method A | 200 (0.9) min. 260 typ. 250 (1.1) min. 300 typ. | 200 (0.9) min. 260 typ. 250 (1.1) min. 300 typ. |
| Elongation at break of fabric, % | ASTM D 751 | 25 typical | 25 typical |
| Tearing strength, lbf (N) (2 in/min strain rate) | | | |
| 36-mil | ASTM D 5884 (max. load) | 80 (356) min 130 (578) typ | |
| 45 & 60-mil | | 100 (445) min. 160 (712) typ | |
| Low temperature flexibility, °F (°C) | ASTM D2136 1/8 in mandrel 4 hour @ Temp.) | -40 (-40) max. -50 (-46) typical | |
| Linear Dimensional Change (shrinkage), % | ASTM D 1204 | | ± 1.0 max. - 0.5 typical |
| Ozone resistance, 100 pphm, 168 hrs | ASTM D 1149 | No cracks | No cracks |
| Resistance to water (distilled) absorption After 30 days immersion 122°F (50°C) Change in mass, % | ASTM D 471 (coating compound) | 1.0 max. 0.5 typical | |
| Hydrostatic resistance, lbf/in ² or psi (MPa) (Mullen burst) | | | |
| 36-mil | ASTM D 751 | 350 (2.4) min | 350 (2.4) min |
| 45-mil | Procedure A | 400 (2.8) typical | 400 (2.8) typical |
| 60-mil | | 450 (3.1) typical | 450 (3.1) typical |
| | | 500 (3.4) typical | 500 (3.4) typical |
| Field seam strength, lbf (N) Seam tested in peel after weld | ASTM D 4437 1 in. wide | 30 (5.3) min. 60 (10.5) typical | |
| Water vapor permeance, Perms | ASTM E 96 | 0.10 max. 0.05 typical | |
| Puncture resistance, lbs (N) 36-mil & 45-mil 60-mil | ASTM D 4833 (index puncture) | 85 (378) min. 110 (489) typical 120 (534) typical | |
| Resistance to xenon-arc weathering ¹ Xenon-Arc, 10,080 kJ/m ² total radiant exposure, visual condition at 10X | ASTM G 155 0.70 W/m ² 80°C B.P.T. | No cracks No loss of breaking or tearing strength | |
| Typical Fabricated Seam Properties: ² | | | |
| Bonded Seam Strength, lbs (kN/m) | ASTM D-751 Modified | 200 (0.89) | |
| Peel Adhesion, lbs (kN/m) | ASTM D-413, Modified | 20 (3.5) or FTB | |

¹ Approximately equivalent to 8000 hours exposure at 0.35 W/m² irradiance

² Factory bonded seam strength is the responsibility of the fabricator.

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