

36-mil Polypropylene Geomembrane – Physical Properties

Physical Property	Test Method	Property Of Unaged Sheet	Property After Aging 672 hrs (28 days) @ 240°F (116°C)
Tolerance on nominal thickness, %	ASTM O 5199 ASTMD 751	0.036" ± 10	
Thickness over scrim, in. (mm)	ASTM D4637 Optical Method	0.010 (0.254) min.	
Mass per unit area, lb/ft ² (g/ft ²) (kg/m ²)	ASTM D 5261	0.17 (77) (0.83) typical	
Breaking strength, lbf (kN) (grab tensile at strain rate of 12 in./min.) 36-mil	ASTM D 751 Grab Method A	200 (0.9) min. 260 typ.	200 (0.9) min. 260 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 D5884 (max. load)	80 (356) min. 130 (578) typ.	
Low temperature flexibility, °F (°C)	ASTM D 2135 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 hours	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 only)	1.0 max 0.5 typical	
Hydrostatic resistance, lbfr/in. 2 or psi (MPA) (Mullen burst)	ASTN D 751 Procedure A	350 (2.4) min. 400 (2.8) typical	350 (2.4) min. 400 (2.8) typical
Field Seam strength, lbf/in. (kN/m) Seam tested in peel after weld	ASTM D 4437 1 in. wide	30 (5.3) min. 60 (10.5) typical peak value	
Factory Seams, bonded seam strength, lbf (kN), if applicable	ASTM D 751 Grab Method A	200 (0.9) min	
Water Vapor permeance, Perms	ASTM E 96	0.10 max. 0.05 typical	
Puncture resistance, lbf (N)	ASTM D4833 (index puncture)	85 (378) min 110 (489) typical	
Resistance to xenon-arc weathering ¹ Xenon-arc, 15,120 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	

¹Equivalent to 12,000 hours exposure at 0.35 W/m² irradiance B.P.T. is black panel temperature.

Note: Factory seams are not a normal condition of the supplied sheet described in this chart.

45-mil Polypropylene Geomembrane – Physical Properties

Physical Property	Test Method	Property Of Unaged Sheet	Property After Aging 672 hrs (28 days) @ 240°F (116°C)
Tolerance on nominal thickness, %	ASTM D 5199 ASTM D 751	0.045" ± 10	
Thickness over scrim, in. (mm)	ASTM D4637 Optical Method	0.013 (0.330) min.	
Mass per unit area, lb/ft ² (g/ft ²) (kg/m ²)	ASTM D 5261	0.21 (95) (1.03) typical	
Breaking strength, lbf (kN) (grab tensile at strain rate of 12 in./min.)	ASTM D 751 Grab Method A	250 (1.1) min. 300 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)	ASTM D5884 (max. load)	100 (445) min. 160 (712) typ.	
Low temperature flexibility, °F (°C)	ASTM D 2135 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 hours	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 only)	1.0 max 0.5 typical	
Hydrostatic resistance, lbfr/in. 2 or psi (MPA) (Mullen burst)	ASTM D 751 Procedure A	350 (2.4) min. 450 (3.1) typical	350 (2.4) min. 450 (3.1) typical
Field Seam strength, lbf/in. (kN/m) Seam tested in peel after weld	ASTM D 4437 1 in. wide	30 (5.3) min. 60 (10.5) typical peak value	
Factory Seams, bonded seam strength, lbf (kN), if applicable	ASTM D 751 Grab Method A	200 (0.9) min	
Water Vapor permeance, Perms	ASTM E 96	0.10 max. 0.05 typical	
Puncture resistance, lbf (N)	ASTM D4833 (index puncture)	85 (378) min 110 (489) typical	
Resistance to xenon-arc weathering ¹ Xenon-arc, 15,120 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	

¹Equivalent to 12,000 hours exposure at 0.35 W/m² irradiance B.P.T. is black panel temperature.

Note: Factory seams are not a normal condition of the supplied sheet described in this chart.

60-mil Polypropylene Geomembrane – Physical Properties

Physical Property	Test Method	Property Of Unaged Sheet	Property After Aging 672 hrs (28 days) @ 240°F (116°C)
Tolerance on nominal thickness, %	ASTM D 5199 ASTM D 751	0.060" ± 10	
Thickness over scrim, in. (mm)	ASTM D4637 Optical Method	0.030 (0.762) min.	
Mass per unit area, lb/ft ² (g/ft ²) (kg/m ²)	ASTM D 5261	0.25 (117) (1.22) typical	
Breaking strength, lbf (kN) (grab tensile at strain rate of 12 in./min.)	ASTM D 751 Grab Method A	250 (1.1) min. 300 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)	ASTM D5884 (max. load)	100 (445) min. 160 (712) typ.	
Low temperature flexibility, °F (°C)	ASTM D 2135 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 hours	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 only)	1.0 max 0.5 typical	
Hydrostatic resistance, lbf/in. 2 or psi (MPA) (Mullen burst)	ASTM D 751 Procedure A	350 (2.4) min. 500 (3.4) typical	350 (2.4) min. 500 (3.4) typical
Field Seam strength, lbf/in. (kN/m) Seam tested in peel after weld	ASTM D 4437 1 in. wide	30 (5.3) min. 60 (10.5) typical peak value	
Factory Seams, bonded seam strength, lbf (kN), if applicable	ASTM D 751 Grab Method A	200 (0.9) min	
Water Vapor permeance, Perms	ASTM E 96	0.10 max. 0.05 typical	
Puncture resistance, lbf (N)	ASTM D4833 (index puncture)	85 (378) min 118 (525) typical	
Resistance to xenon-arc weathering ¹ Xenon-arc, 15,120 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	

¹Equivalent to 12,000 hours exposure at 0.35 W/m² irradiance B.P.T. is black panel temperature.

Note: Factory seams are not a normal condition of the supplied sheet described in this chart.