LAYFIELD GEOSYNTHETICS

TECHNICAL SPECIFICATIONS

HIGH DENSITY POLYETHYLENE (HDPE)

High Density Polyethylene (HDPE) is a versatile material that is used widely across many applications. One of the primary uses of HDPE is as a liner at the base of landfills, where its chemical resistance is required. HDPE applications also include pond linings and water containment projects.

Typical Properties

Aug 2024

High Density Polyethylene (HDPE), Black

Style	ASTM	**HDPE 40** Smooth	**HDPE 60** Smooth	**HDPE 80** Smooth	**HDPE 40** Textured	**HDPE 60** Textured	**HDPE 80** Textured
Thickness, (Minimum Average)	D5199 / D5994	40 mil 1.0 mm	60 mil 1.5 mm	80 mil 2.0 mm	38 mil 0.95 mm	57 mil 1.43 mm	76 mil 1.90 mm
Asperity Height, (Minimum Average)	D7466				16 mil 0.4 mm	16 mil 0.4 mm	16 mil 0.4 mm
Density	D792	≥ 0.94 g/cc	≥ 0.94 g/cc	≥ 0.94 g/cc	≥ 0.94 g/cc	≥ 0.94 g/cc	≥ 0.94 g/cc
Tensile Yield Strength, (Minimum Average)	D6693 (Type IV Die)	84 ppi 15 N/mm	126 ppi 22 N/mm	168 ppi 29 N/mm	84 ppi 15 N/mm	126 ppi 22 N/mm	168 ppi 29 N/mm
Tensile Break Strength, (Minimum Average)		152 ppi 27 N/mm	228 ppi 40 N/mm	304 ppi 53 N/mm	60 ppi 10 N/mm	90 ppi 16 N/mm	120 ppi 21 N/mm
Tensile Yield Elongation, (Minimum Average)	D6693 (Type IV Die) 1.3 in./33 mm Gauge Length	12%	12%	12%	12%	12%	12%
Tensile Break Elongation, (Minimum Average)	D6693 (Type IV Die) 2.0 in./50 mm Gauge Length	700%	700%	700%	100%	100%	100%
Tear Resistance, (Minimum Average)	D1004	28 lbs 125 N	42 lbs 187 N	56 lbs 249 N	28 lbs 125 N	42 lbs 187 N	56 lbs 249 N

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	Puncture Resistance, (Minimum Average)	D4833	72 lbs 320 N	108 lbs 480 N	144 lbs 640 N	60 lbs 267 N	90 lbs 400 N	120 lbs 534 N
	Stress Crack Resistance	D5397 (App.)	≥ 500 Hours	≥ 500 Hours	≥ 500 Hours	≥ 500 Hours	≥ 500 Hours	≥ 500 Hours
	Carbon Black Content	D4218	2.0-3.0 %	2.0-3.0 %	2.0-3.0 %	2.0-3.0 %	2.0-3.0 %	2.0-3.0 %
	Carbon Black Dispersion	D5596	9 out of 10 Cat 1 or 2, 1 Cat 3	9 out of 10 Cat 1 or 2, 1 Cat 3	9 out of 10 Cat 1 or 2, 1 Cat 3	9 out of 10 Cat 1 or 2, 1 Cat 3	9 out of 10 Cat 1 or 2, 1 Cat 3	9 out of 10 Cat 1 or 2, 1 Cat 3
	High-Pressure OIT	D5885	≥ 400 mins	≥ 400 mins	≥ 400 mins	≥ 400 mins	≥ 400 mins	≥ 400 mins
	Oven aging at 85ºC HPOIT - % retained after 90 days, (Minimum Average)	D5721 D5885	80%	80%	80%	80%	80%	80%
	UV Resistance HPOIT- % retained after 1600 Hrs UV Light, (Minimum Average)	D7238 D5885	50%	50%	50%	50%	50%	50%
	Maximum Continuous use Temperature[1]		60°C	60°C	60°C	60°C	60°C	60°C

[1] Please contact Layfield Technical Services for more information

Aug 2024

HDPE Minimum Field Seam Strengths

Style	ASTM D6392	**HDPE 40** Smooth	**HDPE 60** Smooth	**HDPE 80** Smooth	**HDPE 40** Textured	**HDPE 60** Textured	**HDPE 80** Textured
Bonded Seam Strength Test Temp 23°C, 73°F	1" (25 mm) Strip	80 ppi 14 N/mm	120 ppi 21 N/mm	160 ppi 28 N/mm	80 ppi 14 N/mm	120 ppi 21 N/mm	160 ppi 28 N/mm
Peel Adhesion Strength (Extrusion Welds)	1" (25 mm) Strip	52 ppi 9 N/mm	78 ppi 14 N/mm	104 ppi 18 N/mm	52 ppi 9 N/mm	78 ppi 14 N/mm	104 ppi 18 N/mm