

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 put to use. HDPE applications also include pond linings and water containment projects.

April 2023		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
Nominal Thickness	D5199	40 mil 1.0 mm	60 mil 1.5 mm	80 mil 2.0 mm	38 mil 0.96 mm	57 mil 1.45 mm	76 mil 1.90 mm
Asperity Height	D7466				16 mil 0.4 mm	16 mil 0.4 mm	16 mil 0.4 mm
Density	D792	≥ 0.94 mg/l	≥ 0.94 mg/l	≥ 0.94 mg/l	≥ 0.94 mg/l	≥ 0.94 mg/l	≥ 0.94 mg/l
Typical Properties Tensile Strength Type IV Die	D6693 Yield Strength	84 ppi 15 kN/m	126 ppi 22 kN/m	168 ppi 29 kN/m	84 ppi 15 kN/m	126 ppi 22 kN/m	168 ppi 29 kN/m
	Break Strength	152 ppi 27 kN/m	228 ppi 40 kN/m	304 ppi 53 kN/m	60 ppi 10 kN/m	90 ppi 16 kN/m	120 ppi 21 kN/m
	Yield Elongation 33 mm Gauge Length	12%	12%	12%	12%	12%	12%
	Break Elongation 50 mm Gauge Length	700%	700%	700%	100%	100%	100%
Tear Resistance	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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Stress Cracking	D5397	500 Hours	500 Hours	500 Hours	500 Hours	500 Hours	500 Hours
Puncture Resistance	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
Carbon Black Content	D6370	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	Cat 1 or 2	Cat 1 or 2	Cat 1 or 2	Cat 1 or 2	Cat 1 or 2	Cat 1 or 2
HPOIT	D5885	400 mins	400 mins	400 mins	400 mins	400 mins	400 mins
Oven aging at 85° C HPOIT - % retained after 90 days	D5721 D5885	80%	80%	80%	80%	80%	80%
UV Resistance High Pressure OIT (min. ave.)- % retained after 90 days	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

April 2023		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	25 mm (1") Strip	80 ppi 14 N/mm	120 ppi 21 N/mm	160 ppi 28 N/mm	120 ppi 21 N/mm	120 ppi 21 N/mm	160 ppi 28 N/mm
Peel Adhesion Strength (Extrusion Welds)	25 mm (1") Strip	52 ppi 9 N/mm	78 ppi 14 N/mm	104 ppi 18 N/mm	78 ppi 14 N/mm	78 ppi 14 N/mm	104 ppi 18 N/mm

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