

HDPE – Product Data Sheet

Smooth Material of 1,5 mm thickness
Made in Germany

BC HDPE is a black, high quality, high density polyethylene (HDPE) geomembrane produced from specially formulated, virgin polyethylene resin. The polyethylene resin is designed specifically for flexible and durable geomembrane applications. **BC HDPE** contains approximately 97.5% polyethylene, 2.5% carbon black and trace amounts of antioxidants and head stabilizers. **BC HDPE** has outstanding chemical resistance, mechanical properties, environmental stress crack resistance, dimensional stability and thermal aging characteristics. **BC HDPE** has excellent resistance to UV radiation and is suitable for exposed applications. These product specifications meet or exceed GRI-GM 13.

Tested Property	Unit	Test Method	Values (*)				
			1.0	1.5	2.0	2.5	3.0
Thickness ^(a)	mm	ASTM D 5199	1.0	1.5	2.0	2.5	3.0
Density	g/cm ³	ASTM D 792	≥ 0.94	≥ 0.94	≥ 0.94	≥ 0.94	≥ 0.94
Tensile Properties (each Direction)		ASTM D 638/ D 6693; type IV					
Strength at Yield	N/mm	50 mm/min	16 ⁽¹⁵⁾	24 ⁽²²⁾	32 ⁽³⁰⁾	40 ⁽³⁷⁾	48 ⁽⁴⁵⁾
Elongation at Yield	%	l ₀ = 33 mm	16 ⁽¹³⁾	16 ⁽¹³⁾	16 ⁽¹³⁾	16 ⁽¹³⁾	16 ⁽¹³⁾
Strength at Break	N/mm	200 mm/min	33 ⁽²⁷⁾	49 ⁽⁴⁰⁾	66 ⁽⁵³⁾	83 ⁽⁶⁷⁾	100 ⁽⁸⁰⁾
Elongation at Break	%	l ₀ = 50 mm	800 ⁽⁷⁰⁰⁾	800 ⁽⁷⁰⁰⁾	800 ⁽⁷⁰⁰⁾	800 ⁽⁷⁰⁰⁾	800 ⁽⁷⁰⁰⁾
Tear Resistance	N	ASTM D 1004	140 ⁽¹³⁰⁾	205 ⁽¹⁹⁰⁾	275 ⁽²⁵⁰⁾	350 ⁽³¹⁵⁾	420 ⁽³⁷⁵⁾
Puncture Resistance	N	ASTM D 4833	420 ⁽³²⁰⁾	560 ⁽⁴⁸⁰⁾	690 ⁽⁶⁴⁰⁾	830 ⁽⁸⁰⁰⁾	980 ⁽⁹⁶⁰⁾
Carbon Black Content	%	ASTM D 1603	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0
Carbon Black Dispersion	Category	ASTM D 5596	1/2 ^(b)	1/2 ^(b)	1/2 ^(b)	1/2 ^(b)	1/2 ^(b)
Dimensional Stability (each Direction)	%	ASTM D 1204 (120 °C/1h)	± 2	± 2	± 2	± 2	± 2
Melt Flow Index ^(c)	g/10min	ASTM D 1238 (190 °C/5.0 kg) (190 °C/2.16 kg)	≤ 3.0 ≤ 1.0	≤ 3.0 ≤ 1.0	≤ 3.0 ≤ 1.0	≤ 3.0 ≤ 1.0	≤ 3.0 ≤ 1.0
Stress Crack Resistance (NCTL)	h	ASTM D 5397; Appendix	≥ 400	≥ 400	≥ 400	≥ 400	≥ 400
Reference Property	Unit	Test Method	Values (*)				
Low Temperature Brittleness	°C	ASTM D 746	- 77	- 77	- 77	- 77	- 77
Oxidative Induction Time (OIT)	min	ASTM D 3895 (200 °C; Pure O ₂ ; 1 atm)	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100
UV Resistance ^(d) HP-OIT retained after 1,600 hours ^(e)	%	GRI-GM 11 ASTM D 5885	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50
Roll Width (approx.)	m	----	7.5 / 6.95			7.5	
Surface	---	----	double-sided smooth				

(*): All values – unless otherwise noted – are nominal values. Values in brackets are minimum values within the 95% confidence interval.

(a): Tolerance $\pm 10\%$ - Special thickness available upon request.

(b): Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be category 1 or 2. No more than 1 view from category 3.

(c): Standard test conditions: 190 °C / 5.0 kg.

(d): Test-Conditions: 20 hours UV cycle at 75 °C followed by 4 hours condensation at 60 °C; total: 1,600 hours.

(e): UV Resistance is based on percent retained value regardless of the original High Pressure – OIT value.

