

## DRILINE® SMOOTH (LLDPE) Product Data Sheet

(available from 0.5 – 2.5 mm)

DRILINE® SMOOTH (LLDPE) is a black, high quality, linear low density polyethylene (LLDPE) geomembrane produced from specially formulated, virgin polyethylene resin with outstanding flexibility. The polyethylene resin is designed specifically for flexible geomembrane applications. Its high uniaxial and multiaxial elongation characteristics make it very suitable for applications where differential or localized subgrade settlements are expected such as landfill closure cappings, leach pads, or any application where elongation or puncture resistance is critical. DRILINE® SMOOTH (LLDPE) contains approximately 97.5% polyethylene, 2.5% carbon black and trace amounts of antioxidants and heat stabilizers. DRILINE® SMOOTH (LLDPE) has excellent resistance to UV radiation and is suitable for exposed applications. These product specifications meet or exceed GRI-GM 17.

Tested Property	Unit	Test Method	Values (*)					
			0.5	0.75	1.0	1.5	2.0	2.5
Thickness <sup>(a)</sup>	mm	ASTM D 5199	0.5	0.75	1.0	1.5	2.0	2.5
Density	g/cm <sup>3</sup>	ASTM D 792	≤0.939	≤0.939	≤0.939	≤0.939	≤0.939	≤0.939
Tensile Properties (each Direction) (Minimum Average)								
Strength at Break	N/mm	ASTM D 638 / 6693; type IV; 200 mm/min; lo = 50mm	13	20	33 <sup>(27)</sup>	50 <sup>(40)</sup>	66 <sup>(53)</sup>	82 <sup>(66)</sup>
Elongation at Break	%		800	800	950 <sup>(800)</sup>	950 <sup>(800)</sup>	950 <sup>(800)</sup>	950 <sup>(800)</sup>
Tear Resistance (Minimum Average)	N	ASTM D 1004	50	70	110 <sup>(100)</sup>	165 <sup>(150)</sup>	220 <sup>(200)</sup>	275 <sup>(250)</sup>
Puncture Resistance (Minimum Average)	N	ASTM D 4833	120	190	320 <sup>(250)</sup>	430 <sup>(370)</sup>	550 <sup>(500)</sup>	660 <sup>(620)</sup>
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	2.0 – 3.0
Carbon Black Dispersion	Category	ASTM D 5596	1 / 2 <sup>(b)</sup>	1 / 2 <sup>(b)</sup>	1 / 2 <sup>(b)</sup>	1 / 2 <sup>(b)</sup>	1 / 2 <sup>(b)</sup>	1 / 2 <sup>(b)</sup>
Dimensional Stability (each Direction)	%	ASTM D 1204 (100 °C/1h)	±2	±2	±2	±2	±2	±2
Melt Flow Index <sup>®</sup>	g/10 min	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	≤3.0 ≤1.0
Reference Property	Unit	Test Method	Values					
Multiaxial Elongation at Break	%	Similar to ASTM D 5617; Ø= 500m	≥30	≥30	80	80	80	80
Low Temperature Brittleness	°C	ASTM D 746	-77	-77	-77	-77	-77	-77
Oxidative Induction Time (OIT)	min	ASTM D 3895 (200 °C; Pure O <sub>2</sub> ; 1 atm)	≥100	≥100	≥100	≥100	≥100	≥100
UV Resistance <sup>(d)</sup> HP-OIT retained after 1,600 hours <sup>(e)</sup>	%	GRI-GM 11 ASTM D 5885	≥35	≥35	≥35	≥35	≥35	≥35
Roll Width (approx.)	M	--	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 ± 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

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