GSE UltraFlex
Product Data Sheet
(available from 0.5 – 2.5 mm)

GSE UltraFlex is a black, high quality, linear low density polyethylene (LLDPE) geomembrane produced from specially formulated 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. GSE UltraFlex contains approximately 97.5% polyethylene, 2.5% carbon black, trace amounts of antioxidants and heat stabilizers, and is suitable for exposed applications. These product specifications meet or exceed GRI-GM 17.

Tested Property	Unit	Test Method	Values (*)			
Thickness [a]	mm	DIN EN ISO 9863-1	1.0	1.5	2.0	2.5
Density	g/cm³	DIN ISO 1183-1/A	≤ 0.939	≤ 0.939	≤ 0.939	≤ 0.939
Tensile Properties (each Direction)		DIN EN ISO 527-3 (Type 5; 100 mm/min; lo = 50 mm)				
Stress at Break	MPa		33 (26)	33 (26)	33 (26)	33 (26)
Elongation at Break	%		900 (750)	900 (750)	900 (750)	900 (750)
Tear Resistance	N	DIN ISO 34-1/B(a)	115 (110)	175 (165)	230 (220)	285 (275)
Puncture Resistance	N	DIN EN ISO 12236	2,350 (2,000)	3,500 (3,100)	4,600 (4,100)	5,700 (5,100)
Carbon Black Content	%	ASTM D 1603	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]
Dimensional Stability (each Direction)	%	DIN 53377 (100 °C/1h)	± 2	± 2	± 2	± 2
Melt Flow Index [c]	g/10 min	DIN EN ISO 1133 (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
Oxidative Induction Time (OIT)	min	ASTM D 3895 (200°C; Pure O_2; 1 atm)	≥ 100	≥ 100	≥ 100	≥ 100
Reference Property	**Unit**	**Test Method**	**Values (*)**			
Multiaxial Elongation at Break	%	similar to ASTM D 5617 ; Ø = 500 mm	80	80	80	80
Low Temperature Brittleness	°C	ASTM D 746	- 77	- 77	- 77	- 77
UV Resistance [d] HP-OIT retained after 1,600 hours [e]	%	GRI-GM 11 ASTM D 5885	≥ 35	≥ 35	≥ 35	≥ 35
Roll Width [f]	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 ± 5% - 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.
(f): Roll widths and lengths have a tolerance of ± 1%.

GSE UltraFlex is produced at GSE Rechlin plant, Germany.

CE

1213–CPD-3880

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