



GSE Ultra FrictionFlex – Product Data Sheet

GSE Ultra FrictionFlex is a high quality, very flexible polyethylene (LLDPE/VPPE) geomembrane produced from specially formulated, virgin polyethylene resin and textured using GSE's patented FrictionFlex process. The high uniaxial and multiaxial elongation characteristics of GSE Ultra FrictionFlex provide a solution for applications where differential or localised subgrade settlements are expected such as leach pads and landfill closure caps. The FrictionFlex process is the only manufacturing method that provides a textured material with minimal reduction of the properties of the smooth surfaced membrane. No other textured membrane provides an equivalent combination of enhanced slope stability and resistance to containment failure if settlement of the lined structure occurs.

Tested Property	Unit	Test Method	Minimum Values ⁽¹⁾			
Thickness ⁽²⁾	mm	ASTM D 5994	0.75	1.0	1.5	2.0
Density (max)	g/cm ³	ASTM D 792 / 1505A	≤ 0.939	≤ 0.939	≤ 0.939	≤ 0.939
Tensile Properties (each Direction)		ASTM D 6693, Type IV, Speed: 50 mm/min				
Strength at Break	N/mm		17	24	40	53
Elongation at Break	%	G.L. = 50 mm	500	600	600	700
Tear Resistance	N	ASTM D 1004	70	100	150	200
Puncture Resistance	N	ASTM D 4833	190	250	370	500
Carbon Black Content	%	ASTM D 1603	2.0	2.0	2.0	2.0
Carbon Black Dispersion	Category	ASTM D 5596	1/2 ⁽³⁾	1/2 ⁽³⁾	1/2 ⁽³⁾	1/2 ⁽³⁾
Asperity Height ⁽⁴⁾	mm	GRI-GM 12	0.25	0.25	0.25	0.25
Reference Property	Unit	Test Method	Nominal Values			
Melt Flow Index	g/10 min	ASTM D 1238. Cond. 190/2.16	< 1.0	< 1.0	< 1.0	< 1.0
Dimensional Stability (each Direction)	%	ASTM D 1204, 100°C, 1 hour	± 2	± 2	± 2	± 2
Multi-axial Strain	%	ASTM D 5617	30	30	30	30
2% Secant Modulus (max)	N/mm ²	ASTM D 5323	≤ 420	≤ 420	≤ 420	≤ 420
Oxidative Induction Time (Standard-OIT)	min	ASTM D 3895, 200 °C, pure O ₂ , 1 atm	≥ 100	≥ 100	≥ 100	≥ 100
Oven Ageing	%	ASTM D 5721				
Standard-OIT retained after 90 days, 85°C	%	ASTM D 3895	≥ 35	≥ 35	≥ 35	≥ 35
UV Resistance ⁽⁵⁾	%	GRI-GM 11				
HP-OIT retained after 1,600 hours	%	ASTM D 5885	≥ 35	≥ 35	≥ 35	≥ 35
Roll Width (approx.) ⁽⁶⁾	m	---	5.9			

(1): Value at 95% confidence interval.

(2): Average value of 10 specimens taken across roll width. No value to be less than 90% of average value.

(3): 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.

(4): 8 out of 10 readings must be ≥ 0.18 mm and lowest individual must be ≥ 0.13 mm.

(5): Value based on % retained regardless of the original HP-OIT value.

(6): Roll widths and lengths have a tolerance of ± 1%.



Additional information on the properties of GSE geomembranes, including roll sizes, is available on request.

GSE Ultra FrictionFlex is produced at GSE Soham plant, United Kingdom.

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