



The Pioneer of Geosynthetics  
S I N C E 1 9 7 2

## GSE UltraFlex FrictionFlex Geomembrane (Single-Sided)

GSE UltraFlex FrictionFlex is a spray-on texture version of GSE UltraFlex. It is a linear low density polyethylene (LLDPE) geomembrane that is textured on one side using GSE's patented texturing process and manufactured with the highest quality resin specifically formulated for flexible geomembranes. This process is the only one that produces a textured material without significant reduction of any physical properties. The product allows project for greater slopes to be designed since frictional characteristics are enhanced.

### Product Specifications

*These product specifications meet or exceed GRI GM 17.*

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE				
			LSD 100A00T	LSD 150A00T	LSD 200A00T	LSD 250A00T	
<b>Product Code</b>							
Thickness	ASTM D 5994	every roll	LSD 100A00T	LSD 150A00T	LSD 200A00T	LSD 250A00T	
Minimum average, mm (mil)			1.0 (40)	1.5 (60)	2.0 (80)	2.5 (100)	
Lowest individual reading, mm (mil)			0.9 (36)	1.35 (54)	1.8 (72)	2.25 (90)	
Density, g/cm <sup>3</sup>	ASTM D 1505	every 5th roll	0.92	0.92	0.92	0.92	
Tensile Properties (each direction)	ASTM D 6693, Type IV Dumbell, 2 ipm G.L. 51 mm (2.0 in)	every 5th roll	Strength at Break, N/mm-width (lb/in)	25 (143)	40 (228)	53 (303)	66 (377)
Elongation at Break, %			700	700	700	700	
Tear Resistance, N (lb)	ASTM D 1004	every 5th roll	100 (22)	150 (34)	200 (45)	250 (56)	
Puncture Resistance, N (lb)	ASTM D 4833	every 5th roll	214 (48)	325 (73)	436 (98)	538 (121)	
Carbon Black Content, %	ASTM D 1603	every 5th roll	2.0 – 3.0	2.0 – 3.0	2.0 – 3.0	2.0 – 3.0	
Carbon Black Dispersion	ASTM D 5596	every 5th roll	Note <sup>(1)</sup>	Note <sup>(1)</sup>	Note <sup>(1)</sup>	Note <sup>(1)</sup>	
Asperity Height	ASTM D 7466	every second roll	Note <sup>(2)</sup>	Note <sup>(2)</sup>	Note <sup>(2)</sup>	Note <sup>(2)</sup>	
Oxidative Induction Time, minutes	ASTM D 3895, 200° C; O <sub>2</sub> , 1 atm	90,000 kg	>100	>100	>100	>100	
<b>TYPICAL ROLL DIMENSIONS</b>							
Roll Length (approximate), m (ft)			150 (492)	100 (328)	80 (262)	60 (197)	
Roll Width, m (ft)			7.0 (23)	7.0 (23)	7.0 (23)	7.0 (23)	
Roll Area, m <sup>2</sup> (ft <sup>2</sup> )			1,050 (11,316)	700 (7,544)	560 (6,026)	420 (4,531)	
40' Standard Container, roll			16	16	16	16	

**NOTES:**

- <sup>(1)</sup> 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.
- <sup>(2)</sup> 0.25 mm average. 8 of 10 readings ≥ 0.18 mm. Lowest individual ≥ 0.13 mm.
- GSE UltraFlex FrictionFlex is provided in rolls weighing approximately 1,150 kg (2,535 lb) each.
- All GSE geomembranes have dimensional stability of ±2% when tested with ASTM D 1204 and LTB of <-77° C when tested with ASTM D 746.

ADSUltraFlexFFSS R02/01/10

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