

# High Performance GSE HD Smooth Geomembrane

## METRIC

High Performance GSE HD Smooth is a co-extruded high density polyethylene (HDPE) geomembrane specifically designed to be used in the most stringent applications. This product contains only the finest raw materials to enable exceptional elasticity, environmental stress crack resistance, and excellent multi-axial break resistance. Included in this product is a custom additive package that has been engineered to enable extended geomembrane lifetime and improved resilience in elevated temperatures, hazardous waste containment, or a harsh chemical environment. In addition to a superior UV stabilization package, a well-dispersed premium grade of carbon black is utilized to deliver superb UV resistance in exposed applications.



**AT THE CORE:**  
An HDPE geomembrane used in applications that require excellent chemical resistance and endurance properties.

## Product Specifications

These product specifications exceed GRI GM13

Tested Property	Test Method	Frequency	Minimum Average Value				
			0.75 mm	1.00 mm	1.50 mm	2.00 mm	2.50 mm
Thickness, mm Lowest individual reading	ASTM D 5199	every roll	0.750 0.675	1.00 0.90	1.50 1.35	2.00 1.80	2.50 2.25
Density, g/cm <sup>3</sup>	ASTM D 1505	90,000 kg	0.94	0.94	0.94	0.94	0.94
Tensile Properties (each direction) Strength at Break, N/mm Strength at Yield, N/mm Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 50 mm/min  G.L. 50 mm G.L. 33 mm	9,000 kg	21 11 800 13	27 15 800 13	42 23 800 13	57 31 800 13	71 37 800 13
Tear Resistance, N	ASTM D 1004	20,000 kg	93	125	187	257	324
Puncture Resistance, N	ASTM D 4833	20,000 kg	289	378	556	711	867
Multi-axial Break Resistance, %	ASTM D 5617	per formulation	30	30	30	30	30
Carbon Black Content, % (Range)	ASTM D 1603*/4218	9,000 kg	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	20,000 kg	Note <sup>(1)</sup>	Note <sup>(1)</sup>	Note <sup>(1)</sup>	Note <sup>(1)</sup>	Note <sup>(1)</sup>
Notched Constant Tensile Load, hr	ASTM D 5397, Appendix	90,000 kg	1,000	1,000	1,000	1,000	1,000
Oxidative Induction Time, mins	ASTM D 3895, 200°C; O <sub>2</sub> , 1 atm	90,000 kg	>160	>160	>160	>160	>160
High Pressure Oxidative Induction Time, mins	ASTM D 5885, 150°C; O <sub>2</sub> , 3.4 MPa	per formulation	>800	>800	>800	>800	>800
Oven aging at 85°C High Pressure OIT (min. avg.) - % retained after 90 days	ASTM D 5721 ASTM D 5885	per formulation	80	80	80	80	80
UV Resistance High Pressure OIT (min. avg.) - % retained after 1,600 hours	GM 11 ASTM D 5885	per formulation	80	80	80	80	80
<b>TYPICAL ROLL DIMENSIONS</b>							
Roll Length <sup>(2)</sup> , m			341	265	171	131	104
Roll Width <sup>(2)</sup> , m			6.86	6.86	6.86	6.86	6.86
Roll Area, m <sup>2</sup>			2,339	1,818	1,173	899	713

[Product specifications continued on back]

## Product Specifications [continued]

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>Roll lengths and widths have a tolerance of  $\pm 1\%$ .
- High Performance GSE HD Smooth is available in rolls weighing approximately 1,800 kg.
- All GSE geomembranes have dimensional stability of  $\pm 2\%$  when tested according to ASTM D 1204 and LTB of  $< -77^{\circ}$  C when tested according to ASTM D 746.
- \*Modified.

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.



**[ DURABILITY RUNS DEEP ]** For more information on this product and others, please visit us at [GSEworld.com](http://GSEworld.com), call 800.435.2008 or contact your local sales office.