



# GSE HD Color Textured – Product Data Sheet

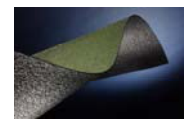
(RAL\*6003 olive-green)

GSE HD Color Textured is a coextruded high quality, high density polyethylene (HDPE) geomembrane, available with a single or double sided textured surface. It has an UV-stabilized, green upper layer that is approximately 0.075 – 0.125 mm thick, being an integral part of the geomembrane. This layer is part of the total thickness, the remainder of which is a carbon black stabilized primary layer. GSE HD Color Textured has excellent mechanical properties, environmental stress crack resistance, dimensional stability and thermal aging characteristics. This product allows projects with greater slopes to be designed since frictional characteristics are enhanced. GSE HD Color Textured is providing exposed lining-systems, which are well integrated into the environment. Other colors (RAL-based) are available upon request. The UV-resistance as well as the color stability is variable in time dependent on the selected color. These product specifications meet or exceed GRI-GM 13.

Tested Property	Unit	Test Method	Values		
Thickness <sup>(a)</sup> (Core Thickness)	mm	ASTM D 5994	1.0	1.5	2.0
Density (Minimum Average)	g/cm <sup>3</sup>	ASTM D 792	0.94	0.94	0.94
Tensile Properties (each Direction) (Minimum Average)		ASTM D 638 / D 6693; type IV			
Strength at Yield	N/mm	50 mm/min	15	22	30
Elongation at Yield	%	lo = 33 mm	13	13	13
Strength at Break	N/mm	200 mm/min	10	16	21
Elongation at Break	%	lo = 50 mm	100	100	100
Tear Resistance (Minimum Average)	N	ASTM D 1004	130	190	250
Puncture Resistance (Minimum Average)	N	ASTM D 4833	267	400	534
Dimensional Stability (each Direction)	%	ASTM D 1204 (120 °C/1h)	± 2	± 2	± 2
Melt Flow Index <sup>(b)</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
Stress Crack Resistance (NCTL) <sup>(c)</sup>	h	ASTM D 5397; Appendix	≥ 400	≥ 400	≥ 400
Asperity Height (each Side) (Minimum Average)	mm	GRI-GM 12	0.25 <sup>(d)</sup>	0.25 <sup>(d)</sup>	0.25 <sup>(d)</sup>
Oxidative Induction Time (OIT)	min	ASTM D 3895 (200°C; Pure O <sub>2</sub> ; 1 atm)	≥ 100	≥ 100	≥ 100
Reference Property	Unit	Test Method	Values		
Low Temperature Brittleness	°C	ASTM D 746	- 77	- 77	- 77
Carbon Black Content <sup>(e)</sup> (black layer)	%	ASTM D 1603	2.0 – 3.0	2.0 – 3.0	2.0 – 3.0
Carbon Black Dispersion (black layer)	Category	ASTM D 5596	1 / 2 <sup>(f)</sup>	1 / 2 <sup>(f)</sup>	1 / 2 <sup>(f)</sup>
UV Resistance <sup>(g)</sup> HP-OIT retained after 1,600 hours <sup>(h)</sup>	%	GRI-GM 11 ASTM D 5885	≥ 50	≥ 50	≥ 50
Roll Width (approx.) <sup>(i)</sup>	m	---	6.95		
Surface	---	---	single-sided or double-sided textured		

\* RAL-System defining color shades, giving them definitive numbers and names.

- (a): Minimum average: - 5%, lowest individual for 8 out of 10: - 10%, lowest individual: - 15% - Special thickness available upon request.
- (b): Standard test conditions: 190 °C / 5.0 kg.
- (c): Note: NCTL is conducted on representative smooth membrane samples.
- (d): 8 out of 10 readings must be ≥ 0.18 mm and lowest individual reading must be ≥ 0.13 mm.
- (e): GSE HD Color Textured may have an overall ash content greater than 3% due to the colored layer.
- (f): 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.
- (g): Test conditions: 20 hours UV cycle at 75°C followed by 4 hours condensation at 60°C; total: 1,600 hours.
- (h): UV Resistance is based on percent retained value regardless of the original High Pressure - OIT value.
- (i): Roll widths and lengths have a tolerance of ± 1%.



GSE HD Color Textured is produced at GSE Rechlin plant, Germany.

*This information is provided for reference purposes only and is not intended as a warranty or guarantee. GSE assumes no liability in connection with the use of this information. Please check with GSE for current, standard minimum quality assurance procedures. This information is subject to change without prior notice. Please contact GSE for updated information.*



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