

# GSE StudLiner

METRIC

GSE StudLiner is a high density polyethylene (HDPE) concrete protection product that protects against chemical and mechanical damage to concrete structures. GSE StudLiner is manufactured with approximately 1.200 studs per square meter to guarantee high pullout strength and provide excellent stress distribution during temperature changes and pressure build-up. GSE StudLiner can be installed over an exposed surface of a new or existing concrete structure, and it will provide a life expectancy that is five times greater than that of an unprotected structure. The product is also available in either a gray or black color, and in a variety of sizes to fit your specific application.



**AT THE CORE:**  
 HDPE concrete protection liner protects structures from mechanical and environmental threats, extending service life.

## Product Specifications

Tested Property	Test Method	Frequency	Nominal Value			
Thickness, mm	ASTM D 5199	Every 5th roll	2.00	3.00	4.00	5.00
Density, g/cm <sup>3</sup>	ASTM D 1505	1/1 00,000 m <sup>2</sup>	0.94	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 6693, Type IV Dumbbell	1/1 00,000 m <sup>2</sup>	15.2	15.2	15.2	15.2
Strength at Yield, MPa	G.L. 50 mm		500	500	500	500
Elongation at Break, %						
Stud Pull-Out Strength <sup>1</sup> , kN/m <sup>2</sup>		1/product	>670	>670	>670	>670
Carbon Black Content/Pigment Content, %	ASTM D 1603*/4218	1/1 00,000 m <sup>2</sup>	2-3	2-3	2-3	2-3
Black (carbon)	ASTM D 5630, Modified		1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5
Gray (pigment)						
Carbon Black Dispersion <sup>2</sup>	ASTM D 5596	1/100,000 m <sup>2</sup>	Note <sup>2</sup>	Note <sup>2</sup>	Note <sup>2</sup>	Note <sup>2</sup>
Notched Constant Tensile Load, hours	ASTM D 5397	1/formulation	500	500	500	500
Coefficient of Linear Thermal Expansion, per °C	ASTM D 696	1/product	1.20E-04	1.20E-04	1.20E-04	1.20E-04
Low Temperature Brittleness, °C	ASTM D 746	1/product	-77	-77	-77	-77
Dimensional Stability, % (each direction)	ASTM D 1204	1/product	±1.0	±1.0	±1.0	±1.0
Water Absorption, %	ASTM D 570	1/product	0.1	0.1	0.1	0.1
Water Vapor Transmission, (g/m <sup>2</sup> /day)	ASTM E 96	1/product	<0.01	<0.01	<0.01	<0.01
TYPICAL ROLL DIMENSIONS						
Roll Width, m			2.44	2.44	2.44	2.44
Roll Length, m			74.97	64.91	59.73	59.73
Roll Area, m <sup>2</sup>			182.83	158.30	145.67	145.67

NOTES:

- <sup>1</sup>Note: Concrete must have compressive strength of at least 34,500 kPa.
- <sup>2</sup>Note: 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.
- \*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.