

# GSE StudLiner

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 110 studs per square foot 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<br>Density, g/cm <sup>3</sup>  | ASTM D 5199<br>ASTM D 1505                        | Every 5th roll<br>1/1 00,000 ft <sup>2</sup> | 2.00<br>0.94        | 3.00<br>0.94        | 4.00<br>0.94        | 5.00<br>0.94        |
| Tensile Properties (each direction)<br>Strength at Yield, lb/in <sup>2</sup><br>Elongation at Break, % | ASTM D 6693, Type IV<br>Dumbbell<br>G.L. = 2.0 in | 1/1 00,000 ft <sup>2</sup>                   | 2,200<br>500        | 2,200<br>500        | 2,200<br>500        | 2,200<br>500        |
| Stud Pull-Out Strength <sup>(1)</sup> , lb/ft <sup>2</sup>   |   | 1/product                                    | >14,000             | >14,000             | >14,000             | >14,000             |
| Carbon Black Content/Pigment Content, %<br>Black (carbon)<br>Gray (pigment)                            | ASTM D 1603*/4218<br>ASTM D 5630,<br>Modified     | 1/1 00,000 ft <sup>2</sup>                   | 2-3<br>1.5-2.5      | 2-3<br>1.5-2.5      | 2-3<br>1.5-2.5      | 2-3<br>1.5-2.5      |
| Carbon Black Dispersion <sup>2</sup>   | ASTM D 5596                                       | 1/100,000 ft <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                                | 400                 | 400                 | 400                 | 400                 |
| 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, ft   |   |  | 8                   | 8                   | 8                   | 8                   |
| Roll Length, ft  |   |  | 246                 | 213                 | 196                 | 196                 |
| Roll Area, ft <sup>2</sup>   |   |  | 1,968               | 1,704               | 1,568               | 1,568               |

NOTES:

- <sup>(1)</sup>Note: Concrete must have compressive strength of at least 5,000 lb/in<sup>2</sup>.
- <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.