



GSE STANDARD PRODUCTS

Product Data Sheet

GSE StudLiner

GSE Studliner is a high density polyethylene (HDPE) embedment liner 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, especially 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.



Product Specifications

TESTED PROPERTY	TEST METHOD	FREQUENCY	NOMINAL VALUE			
Product Code			STU	STU	STU	STU
Black			020N001	030N001	040N001	050N001
Gray			020N031	030N031	040N031	050N031
Thickness, mm (mil)	ASTM D 5199	Every 5th roll	2.00 (80)	3.00 (120)	4.00 (160)	5.00 (200)
Density, g/cm ³	ASTM D 1505	1/100,000 ft ²	0.94	0.94	0.94	0.94
Tensile Properties	ASTM D 6693					
Strength at Yield, lb/in ² (MPa)	Type IV, Dumbell	1/100,000 ft ²	2,200 (14.5)	2,200 (14.5)	2,200 (14.5)	2,200 (14.5)
Elongation at Break, %	G.L. = 2.0 in (50 mm)		500	500	500	500
Stud Pull-Out Strength ¹ , lb/ft ² (kN/m ²)		1/product	>14,000 (669.89)	>14,000 (669.89)	>14,000 (669.89)	>14,000 (669.89)
Carbon Black Content/Pigment Content, %						
Black (carbon)	ASTM D 1603, modified	1/100,000 ft ²	2-3	2-3	2-3	2-3
Gray (pigment)	ASTM D 5630, modified		1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5
Carbon Black Dispersion ²	ASTM D 5596	1/100,000 ft ²	Note 2	Note 2	Note 2	Note 2
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 ² /day)	ASTM E 96	1/product	<0.01	<0.01	<0.01	<0.01
Roll Width, ft (m)			8 (2.44)	8 (2.44)	8 (2.44)	8 (2.44)
Roll Length, ft (m)			246 (74.97)	213 (64.91)	196 (59.73)	196 (59.73)
Roll Area, ft ² (m ²)			1,968 (182.83)	1,704 (158.30)	1,568 (145.67)	1,568 (145.67)

NOTES:

- ⁽¹⁾Note: Concrete must have compressive strength of at least 5,000 lb/in² (34,500 kPa).
- ⁽²⁾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.

DS010 Stud R02/03/06

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