StudLiner™ High Density Polyethylene Liner

US FUSION & Specialty Construction offers GSE StudLiner™
A high density polyethylene (HDPE) concrete embedment liner used in a wide range of applications to protect concrete from corrosion, erosion and mechanical damage.

We have successfully incorporated StudLiner™ in many wastewater products to enhance their performance and longevity. The StudLiner™ is available in 3mm (118mil) or other thicknesses. StudLiner™ demonstrates excellent resistance to chemical and biological attack that would otherwise degrade concrete over time. Incorporating StudLiner™ into a design increases the life expectancy of a structure considerably, resulting in lower long term maintenance costs.

The GSE StudLiner™ incorporates approximately 110 studs per square foot, providing the highest liner pull-out strength available from any thermoplastic concrete system, and allowing minimal lateral movement due to thermal expansion and contraction. Studs are formed during the extrusion process and are an integral part of the sheet. GSE StudLiner™ products have been manufactured since 1986. Production begins with the highest quality resin blended with prime grade carbon black or colored pigment, UV stabilizers and antioxidant to extend the product life. GSE StudLiner™ must pass stringent quality testing requirements and inspection prior to product shipment.

Design Consideration

Cast in place applications typically involve installing pre-fabricated panels on the job site. StudLiner™ sheets can be pre-fabricated into various geometric configurations and panel sizes. Panels are attached to concrete forms with studs facing into the pour area. Concrete is poured and studs are securely fastened into the concrete surface. Once the concrete cures, the forms are then removed and the adjacent StudLiner™ panels are welded together.

Pre-cast concrete structures involve pre-fabricated panels or tubes used for applications such as basins, sumps, trenches, manholes and wet wells. Panels are fabricated to the specified dimensions for molding. Once adjoining pre-cast panels are in place, the adjacent StudLiner panels can be extrusion welded or electro fusion welded together to create a continuous barrier system.

StudLiner™ is also available to rehabilitate structures. Panels can be fabricated and then installed in establishing form work. Grout will be injected into the interstitial space and the studs are permanently locked into place.

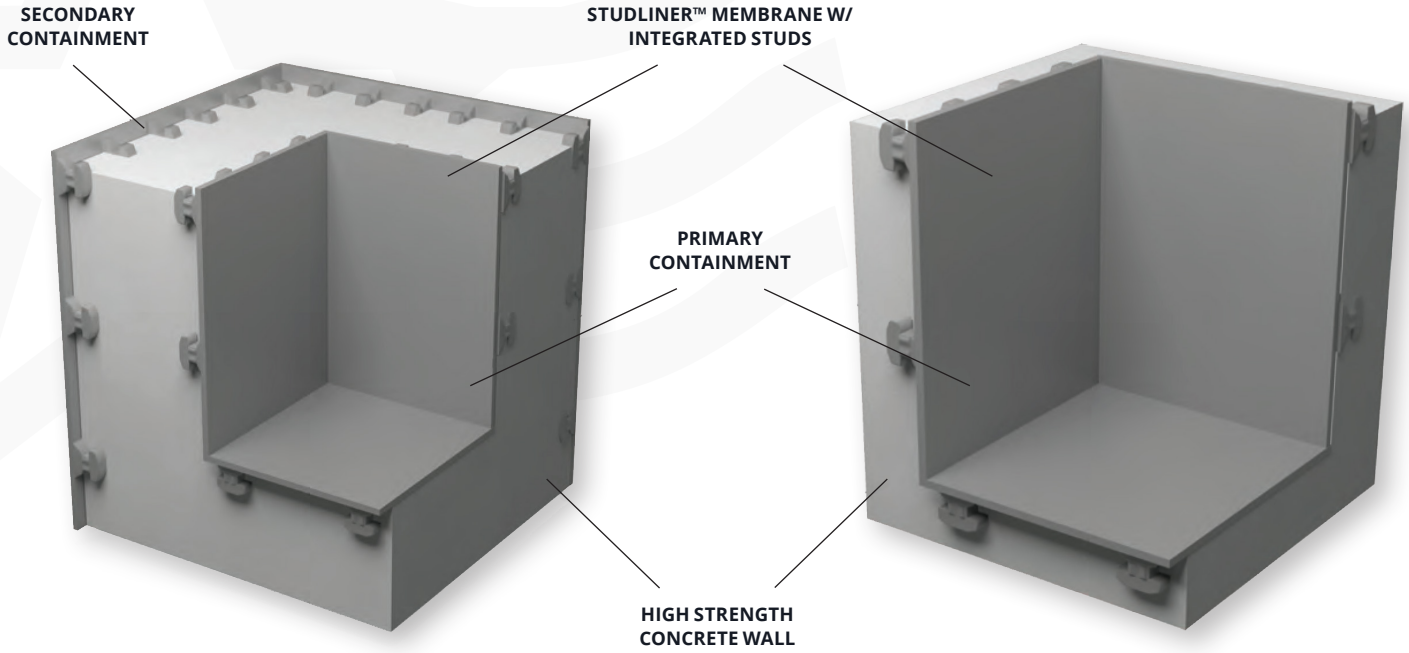
Applications

US FUSION & Specialty Construction's team of experienced professionals are available to match project requirements with a cost effective concrete protection solution. StudLiner™ is designed to be used in plumbing, industrial, municipal and more. Additional applications include:

- WASTEWATER TREATMENT FACILITIES
- ACID NEUTRALIZATION SYSTEMS
- WET WELLS & PUMP LIFTSTATIONS
- GREASE INTERCEPTORS
- SAND-OIL INTERCEPTORS
- JUNCTION BOXES
- MANHOLES
- ELECTRICAL PULLBOXES
- COMMUNICATION PULLBOXES
- SPILL CONTAINMENT DIKES
- TUNNELS
- METHANE & VAPOR BARRIERS
- ABOVE & BELOW GROUND TANKS
- VAULTS

Dual Wall Containment

Single Wall Containment



Specifications

GSE StudLiner™ is a high density polyethylene (HDPE) embedment liner that projects against chemical and mechanical damage to concrete structures.

StudLiner™ is manufactured with approximately 110 studs per sq/ft. to guarantee high pullout strength and provide excellent stress distribution during temperature changes and pressure buildup.

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.

TESTED PROPERTY	TEST METHOD	FREQUENCY	NOMINAL VALUE			
Product Code Black Gray			STU 020N001 STU 020N031	STU 030N001 STU 030N031	STU 040N001 STU 040N031	STU 050N001 STU 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 Strength at Yield, lb/in^2 (MPa) Elongation at Break, %	ASTM D 6693 Type IV, Dumbell G.L. = 2.0 in (50 mm)	1/100,000 ft^2	2,200 (14.5) 500	2,200 (14.5) 500	2,200 (14.5) 500	2,200 (14.5) 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) Gray (pigment)	 ASTM D 1603, modified ASTM D 5630, modified	 1/100,000 ft^2	 2-3 1.5-2.5	 2-3 1.5-2.5	 2-3 1.5-2.5	 2-3 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)

- [1] Concrete must have compressive strength of at least 5,000 lb/in² (34,500 kPa).
- [2] Dispersion only applies to near sherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.

Ready to start your project?
Call us at **(800) 933-8734** or
email **sales@usfusion.com.**

16347 Old Hammond Hwy.
Baton Rouge, LA 70816
(225) 272-5194

3400 Awesome Lane
La Porte, TX 77571
(281) 470-7252

US FUSION & Specialty Construction
usfusion.com