FLOW-LINER® SEWERGARD™ - SPRAY APPLIED NO. 210S

PHYSICAL PROPERTIES

Abrasion resistance
(ASTM D-4060, Tabor Abrader C-17 wheel, 1,000 gram load, 1,000 cycles)
49 mg. average weight loss

Application time (ASTM C-308 modified)	
Working time at 70°F	30 minutes
Initial set at 70°F	17 hours
Bond strength to concrete (ASTM D-4541)	Concrete failure
Components	2 part
Coefficient of thermal expansion (ASTM C-531)	3.8×10^{-5}/F° (2.1×10^{-5}/C°)
Compressive strength (ASTM C-579)	6,800 psi (478 kg/cm^2)
Density (ASTM C-905)	77 pcf (1.23 gm/cm^3)
Flexural strength (ASTM C-580)	4,600 psi (323 kg/cm^2)
Maximum service temperature	150°F (65°C)
Modulus of elasticity (ASTM C-580)	3.3×10^5 psi (2.3×10^4 kg/cm^2)
Moisture absorption (ASTM C-413)	0.2%
Shrinkage (ASTM C-531)	0.11%
Tensile strength (ASTM C-307)	2,500 psi (176 kg/cm^2)
Thickness	60 mils (1.52 mm)
Elongation	1.27%
Tensile modulus	42,000 psi (295 kg/cm^2)
Fracture toughness	100 in-lb/cu. in.

Physical properties were determined on specimens prepared under laboratory conditions using applicable ASTM procedures. Actual field conditions may vary and yield different results; therefore, data are subject to reasonable deviation.

Flow-Liner's SewerGard™ No. 210S is a fiber-filled, spray-applied material specifically designed to protect concrete and steel surfaces of municipal wastewater treatment structures from chemical attack and physical abuse. No. 210S's application properties permit economical protection of new and rehabilitated substrates.

When cured, No. 210S provides an impermeable, high-strength, corrosion-resistant lining for manholes, lift stations, grit chambers, aeration basins and related structures subject to infiltration and attack from hydrogen sulfide and acid generated by microbiological sources.

CHARACTERISTICS

- Resistant to corrosive conditions common to municipal wastewater treatment industry.
- Suitable for application over damp or dry concrete surfaces.
- Spray applied... ideal for new construction.
- Prohibits water infiltration.

AREA PREPARATION

Temperature of Working Area

Maintain a temperature of 65◦-85◦F on air, substrate, Liquid, and Hardener components during mixing, application and cure.

The monolithic components and substrate should be maintained at 65◦F to 80◦F for 48 hours prior to beginning work.

At temperatures below 65◦F, the application becomes more difficult and curing is retarded.

Above 85◦F, the material working time decreases. It is recommended that the material components be stored in a cooler area prior to mixing.

Application in direct sunlight and rising surface temperature may result in blistering of the materials due to expansion of entrapped air or moisture in the substrate. In rising temperatures it may be necessary to postpone the application or apply during cooler hours.

Surface Preparation

Surfaces should be made free of oil, grease, water, and other contaminants that may inhibit bond. This can be achieved by chemical cleaning.

Concrete - Refer to SSPC-SP13/NACE 6 "Surface Preparation of Concrete" for detailed guidelines.

New Concrete - All structures must be properly designed and capable of withstanding imposed loads. Abrasive blast, high-pressure water blast, or acid etch concrete to remove laitance and obtain uniform surface texture.

Old Concrete - Concrete must be firm and structurally sound as specified by the architect/engineer.

Abrasive blast, high-pressure water blast, or acid etch concrete to remove laitance and obtain uniform sound substrate.

Substrate surfaces requiring repairs in excess of 1/8 inch depth should be resurfaced with Flow-Liner's Underlayment No. F-120 to ensure proper rehabilitation of the substrate.

Brick - Abrasive blast or high-pressure water blast all foreign particles and attacked or unsound mortar from the joints. Loose brickwork should be regrouted with appropriate Flow-Liner mortar to ensure structural integrity of the manhole.

All active hydrostatic leaks must be repaired with either Flow-Liner InstaPlug No. F-180 or Hydroactive Polyurethane Grout No. F-370 prior to SewerGard™ No. 210S application.

If abrasive or high-pressure water blasting is used as the method of surface preparation, all sand and/or debris must be removed by thoroughly vacuuming the area with an industrial vacuum cleaner. If surface does not have desired conditions, repeat surface preparation procedure.

Metal - Abrasive blast to a nominal 2.5 mil profile employing SSPC-SP5 White Metal Blast for immersion and SSPCSP10 for other service conditions. All welds must be continuous, free of flux and have a smooth rounded radius without any sharp edges.

APPLICATION

Mixing
Remix contents of Liquid component for a minimum of 2 minutes with a slow speed paddle or "Jiffy" mixer. Remix contents of the Hardener by shaking then add to Liquid and mix for a minimum of 3 minutes until thoroughly blended. Mix only complete batches. Material which has begun to set must be discarded. Do not try to retemper the material.

Installation
The following equipment is typically used for spray application:

Airless Spray Pumps - May be sprayed with a minimum 45:1 piston-primed, airless pump such as the model formerly manufactured by Graco. Alternative equipment such as the Graco 56:1 King Piston Primed Airless, Model 236-477 is also suitable.

The current specification is the Graco Xtreme Sprayer X60 - MDL#X60-DH4. Remove all filters including the filter from surge tank. Other pumps may be suitable, depending on job site requirements.

Moisture Air Dryer - RFI Model DA-300 or equivalent. Moisture air dryer must be placed at least 50 ' from air compressor on air line.

Gun - Graco's Ultra-Lite pistol grip Flo-Gun, Model 235-628 is preferred. This gun must be combined with Seat Adapter Model 235-006. Alternatively, the Graco Flo-Gun Model 224-991 is acceptable.

Gun tip - For fiber filled materials, use Tip Housing Part No. XHD-001 with Graco Reverse Tips MDL No. XHD with orifices of 0.039 to 0.043 inches. Alternative brand tips may be suitable, however, never use tips that contain a diffuser pin.

Material hoses –
- 6' whip end, 3/8" i.d.; working pressure 5,000 psi, 16,000 psi burst.
- 0-25' overall, 1/2" i.d.; working pressure 4,000 psi, 16,000 psi burst.
- 25-75' overall, 3/4" i.d.; working pressure 4,000 psi, 12,000 psi burst.

Air compressor - 180 ft^3 per minute at 100 psi, minimum.

Air hose from compressor - 3/4" to 1" i.d.: 100' maximum length to mastic pump.

To prevent sagging on vertical surfaces, the required coverage should be applied in a single coat of 60 mils. Application should be done with a 50% overlap in a "cross hatch" pattern to reduce the possibility of pinholes and to assure complete coverage.
After No. 210S has sufficiently cured, a holiday detector should be utilized to ensure a continuous pinhole-free lining. A Flow-Liner SewerGard Patch Kit may be used to conveniently repair any pinholes. Consult a Sauereisen representative for details.

COVERAGE
No. 210S: 90 ft^2 per unit at 60 mils.

Coverage is theoretical and will vary depending upon surface conditions, porosity, application techniques and specific project condition.

SETTING/CURING
SewerGard™ No. 210S will have an initial set in approximately two hours and can resist standing water or sewage shortly thereafter. Aggressive or turbulent flow that may inhibit film formation or displace materials while curing will result in poor bond to the substrate. Consult Flow-Liner for parameters specific to your application.

PACKAGING
38.4 lb. unit:

Part A Hardener 1- gallon pail
Part B Liquid 6-gallon pail

*Containers are filled by weight, not volume. Container size does not indicate volume of contents.

CLEAN-UP
All equipment should be cleaned with MEK before material cures. If removal is required after cure consult Sauereisen for specific recommendation.

SHELF LIFE
Flow-Liner SewerGard™ No. 210S has a shelf life of one year when stored in unopened, tightly sealed containers in a dry location at 70°F. Avoid freezing. If there is a doubt as to the quality of the materials, consult a Flow-Liner representative.

CAUTION
Consult Material Safety Data Sheets and container label Caution Statements for hazards in handling these materials.

WARRANTY
We warrant that our goods will conform to the description contained in the order, and that we have good title to all goods sold. WE GIVE NO WARRANTY, WHETHER OF MERCHANTABILITY, FITNESS FOR PURPOSE OR OTHERWISE, EXPRESS OR IMPLIED, OTHER THAN AS EXPRESSLY SET FORTH HEREIN. We are glad to offer suggestions or to refer you to customers using Flow-Liner cements and compounds for a similar application. Users shall determine the suitability of the product for intended application before using, and users assume all risk and liability whatsoever in connection therewith regardless of any suggestions as to application or construction. In no event shall we be liable hereunder or otherwise for incidental or consequential damages. Our liability and your exclusive remedy hereunder or otherwise, in law or in equity, shall be expressly limited to our replacement of nonconforming goods at our factory or, at our sole option, to repayment of the purchase price of nonconforming goods.

- **Distributors and agents in major cities throughout the world. Consult manufacturer for locations.**
- **Information concerning government safety regulations available upon request.**

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