

ReSurfaceStrong 8K Plus Technical Data Sheet

Rev: 01-2023

ReSurfaceStrong 8K Plus provides a system for the rehabilitation of corrugated metal, concrete, or masonry culverts, storm drains, and catch basins to stop inflow, infiltration, exfiltration, and restore structural integrity. ReSurfaceStrong 8K Plus is a high building Type I/II portland cement based product blended with pozzolans, masonry sand, alkaline-resistant fiberglass reinforcement, and performance enhancing admixtures used to form a structural monolithic liner covering all interior substrate surfaces. ReSurfaceStrong 8K Plus is specifically formulated for stormwater applications and culverts 24" in diameter or larger.

Compressive Strength: (ASTM C109)
>9,000 psi 28 Days

Tensile Strength: (ASTM C496)
>800 psi 28 Days

Flexural Strength: (ASTM C293)
>1,200 psi 28 Days

Bond Strength: (ASTM C882)
>2,000 psi 28 Days

Freeze/Thaw Resistance: (ASTM C666)
Pass, No Damage 300 Cycles

Drying Shrinkage: (ASTM C596)
0% 28 Days @ 90% RH

Wet Unit Weight: (ASTM C138)
134 ± 5 lb/ft³

Packaging:
60 lb bag / 40 bags per pallet

Yield per Bag:
0.58 ft³ / 14.0 ft² @ ½" thick

Typical Structures

ReSurfaceStrong 8K Plus provides repairs to a variety of corrugated metal, concrete, and masonry stormwater structures including:

Equipment

- Culverts
- Manholes
- Catch Basins
- Storm Drains

Surface Preparation

Dam, divert, or bypass flow if present. Remove all loose debris and foreign matter by jetting with a high pressure water spray. For larger debris, removal by hand or by heavy equipment may be required. Remove loose and protruding brick, mortar, concrete or metal. Fill any large voids and joints with a rapid-setting patching product per manufacturer's recommendations.

Stop active leaks using an instant-setting, specially formulated product per manufacturer's recommendations. Some leaks may require weep holes to localize the infiltration during the application. After application, the weep holes shall be plugged with the instant-setting product prior to final pass.

When severe infiltration exists, pressure grouting may be required. Follow manufacturer's recommendations when pressure grouting.

Make any bench, invert, or floor repairs at this time using a high strength, selfconsolidating cementitious grout per manufacturer's recommendations.

Mixing

Use 1.2 to 1.5 gallons of water per bag of product. Add the required amount of water to the mixer first, followed by product. Mix until consistency allows for application of up to one inch thick without material "sagging" on a vertical surface. Use the minimum amount of water to achieve desired consistency. Follow all other manufacturer's recommendations.

Discharge mixed material into hopper and prepare another batch in such a manner as to allow continuous application without interruption until complete.

Application

Confirm substrate is clean and free of all foreign material and is damp without noticeable free water droplets or running water prior to application.

For hand spraying: Apply material up to one (1) inch thick in one or more passes starting from the top or crown; however, minimum total thickness shall not be less than 1 inch. Trowel the surface to a relatively smooth finish being careful not to over trowel.

For spincasting: Align spincaster with center of pipe and withdraw spincaster at such a rate that a maximum of a ½ inch of material is applied per pass; however, minimum total thickness shall not be less than 1 inch.

A minimum hold time of two hours shall be strictly observed before applying additional passes for overhead applications. Follow manufacturer's recommendations when more than 24 hours have elapsed between applications.

Curing

Take care to minimize exposure of applied material to sunlight and air movement. When feasible, cover the structure if application of additional passes is to be longer than 15 minutes. Shade the structure in hot and arid climates during application. Keep the applied material damp for the first 72 hours if the humidity level is below 70%. An ASTM C309 curing compound may be used in lieu of keeping material damp.

Hold times for the final application are as follows: storm run-off – 4-6 hours; stream flow – 8-10 hours

Weather

Do not apply if ambient temperature is below 40°F. Do not apply to frozen surfaces or if substrate is expected to freeze within 24 hours after application. Keep the material temperature at time of application below 90°F. Do not allow water temperature to exceed 80°F. Chill with ice if necessary.

Acceptance

Cast four 2 inch cube specimens each day or for every pallet of material used, whichever occurs first. Properly package, label, and return specimens to the manufacturer for testing in accordance with the owner's or manufacturer's directions for compressive strength per ASTM C109.

ReSurfaceStrong 8K Plus Specifications

Rev: 01-2023

INTENT: To provide a system for stormwater structures that stops inflow, infiltration and exfiltration, restores structural integrity, and rehabilitates corrugated metal pipe, concrete pipe, culverts, catch basins and storm drains.

1.0 General

- 1.1 This specification shall govern all work, materials, and equipment required for substrate rehabilitation for the purpose of eliminating infiltration, repair of voids, and restoration of the structural integrity of the substrate as a result of applying a monolithic fiber-reinforced structural cementitious liner to the interior of corrugated metal pipe, concrete pipe, or other masonry construction materials.
- 1.2 Described are procedures for cleaning, preparation, application and testing. The applicator, approved and trained by the manufacturer, shall furnish all labor, equipment and materials for applying a cementitious mix to form a structural monolithic liner of a minimum 1 inch thickness, with machinery specially designed for the application. All aspects of the installations shall be in accordance with the manufacturer's recommendation and per the following specifications which includes:
 - A. The removal of any loose and unsound material
 - B. Cleaning of the area to be sprayed
 - C. The elimination of active infiltration prior to liner application
 - D. The repair and filling of voids
 - E. The repair and sealing of the invert and benches
 - F. The spray application of a cementitious material to form a structural monolithic liner

2.0 Materials

2.1 Infiltration Control Material:

StopStrong 45, an instant-setting cementitious product specifically formulated for leak control, shall be used to stop minor water infiltration and shall be mixed and applied per manufacturer's recommendations. StopStrong 45 shall meet the following performance specifications:

Compressive Strength (ASTM C109)	
4 hours	2000 psi
1 day	4000 psi
28 days	5500 psi

2.2 Liner Material:

ReSurfaceStrong 8K Plus cementitious liner product shall be used to form a structural monolithic liner covering all interior substrate surfaces and shall have the following minimum requirements:

ReSurface Strong 8K Plus Specifications:

Compressive Strength	ASTM C109	>9,000 psi @ 28 days
Tensile Strength	ASTM C496	>800 psi @ 28 days
Flexural Strength	ASTM C293	>1,200 psi @ 28 days
Bond Strength	ASTM C882	>2,000 psi @ 28 days
Freeze/Thaw Resistance	ASTM C666	300 cycles, no damage
Drying Shrinkage	ASTM C596	0% @ 90% RH
Wet Unit Weight	ASTM C138	134 ± 5 lb/ft ³

- 2.5.1 ReSurfaceStrong 8K Plus shall be made with Type I Portland Cement and shall be used according to manufacturer's recommendations in applications where there is no evidence of sulfide conditions (substrate surface of pH 3.0 or higher). ResurfaceStrong 8K Plus or approved equal shall be factory blended requiring only the addition of water at the jobsite. The bag weight shall be 63-67 pounds. The contents shall have a dry bulk density of 82-85 pounds per cubic foot. When mixed with manufacturer's recommended amount of water it shall have a wet nozzle density in the range of 130-140 pounds per cubic foot and shall have a typical yield of .57 cubic feet per bag.
- 2.5.2 ReSurfaceStrong 8K Plus shall be reinforced with alkaline resistant fiberglass rods not less than 1/4 inch in length.
- 2.5.3 The material should meet or exceed industry standards and shall not have any basic ingredient that exceeds EPA maximum allowable limits for any heavy metals.
- 2.6 Water: Water used to mix product shall be clean and free from contaminants. Questionable water shall be tested by a laboratory per ASTM C94. Potable water need not be tested.
- 2.7 Other Materials: No other material shall be used with the mix without prior approval or recommendation from TCI CarbonFibre Technologies

3.0 Equipment

3.1 Applicator must use approved equipment designed and manufactured by the material supplier specifically for the application of cementitious liners. Other models may be approved after review by TCI personnel.

3.2 Specially designed machines consisting of a progressive cavity pump and an air system for low velocity spray application of product, shall be used for applying ReSurfaceStrong 8K Plus product.

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