

## ShieldStrong 955 – PL

NSF 61

### Protective Liner

#### PRODUCT DESCRIPTION

TCI ShieldStrong (955-PL) is a chemical-resistant Protective Liner comprised of a thermoset two-component epoxy. The product is specially formulated as a chemical-resistant protective coating system for concrete and steel infrastructures. The coating system is **NSF/ANSI/CAN 61 approved** for use in potable water applications. The system is also designed to protect concrete, brick, masonry, and steel surfaces against sulfuric acid, gases, and other chemicals usually found in the wastewater headspace.

#### TYPICAL USAGE

- Non-structural protection for new and existing concrete against chemical corrosive environments
- Rehabilitation of brick wastewater manholes
- Chemical protection of infrastructures for industrial applications
- Corrosion protection of metal accessories in water and wastewater facilities
- Protection of buried steel pipes
- Sealing of surfaces against water and water vapour infiltration
- Repair or upgrade inferior materials

#### FIELD OF APPLICATION

- Wastewater treatment plants & sewer trunks.
- Concrete wastewater pipes
- Brick wastewater manholes
- Steel pipes and steel tanks
- Environmental protection for all infrastructures
- All infrastructures subject to harsh environments

#### ADVANTAGES

- Two-in-one coating system which acts as a primer and a chemically resistant protective liner
- Ability to be applied on dry and/or damp substrates
- Long pot life time and ambient cure
- Excellent protection in very harsh environments
- **NSF/ANSI/CAN 61 approved** for potable water applications
- High bond strength to different substrates (concrete, brick, masonry, steel, wood, etc.)
- Good strength to weight ratio
- Can be applied as external and/or internal protective coating
- Fast return-in-service, ability to cure underwater
- 100% solid and Zero Volatile Organic Components (VOC)

#### CHEMICAL CORROSION RESISTANCE

TCI ShieldStrong (955-PL) is Severe Wastewater Analysis Tested “**SWAT**”, meeting and exceeding standards for chemically corrosive environments, as per **ASTM G210**.

For more detailed information please contact [info@tcicarbonfibre.com](mailto:info@tcicarbonfibre.com).

## EPOXY

TCI ShieldStrong (955-PL) is a two-component, 100% solid, room temperature curing, thermoset epoxy system with long pot life characteristics.

Pot life at 23°C temperature, 200 g mass: 1.5 – 2.0 hours  
 Cure cycle: 3 days at room temperature  
 or 6 hours at 45°C + 24 hours at room temperature  
 Shelf life: two (2) years in original unopened, properly stored containers

## MECHANICAL & PHYSICAL PROPERTIES

Mechanical property	Standard	Typical Test Values	Recommended Design Values
Tensile strength [Ksi] (MPa)	ASTM D638	6.8 (46.9)	5.7 (39.3)
Tensile Modulus [Ksi] (MPa)	ASTM D638	620 (4,275)	550 (3,790)
Compressive strength [Ksi] (MPa)	ASTM D695	15.1 (104.1)	12.5 (86.2)
Flexural strength [Ksi] (MPa)	ASTM D790	11.2 (77.2)	9.6 (66.2)
Flexural modulus [ksi] (MPa)	ASTM D790	653 (4,500)	560 (3,860)
Flexural Elongation	ASTM D790	2.4 %	
Hardness	ASTM D2240	87	
Glass Transition Temperature T <sub>g</sub> (°C)	ASTM D4065	55	
Density (g/cm <sup>3</sup> )	ASTM D792	1.36	
Water Absorption	ASTM D570	1.16 %	

## PACKAGING AND YIELD

TCI ShieldStrong (955-PL) is a two-component system consisting of a resin and a hardener, packaged separately in pre-weighted pails, the total volume is 14 Liters when mixed together.

TCI ShieldStrong (955-PL) is available in the colour blue for potable water applications and the colour green for non-potable water applications.

The yield when mixed is 8.75 m<sup>2</sup> [94 ft<sup>2</sup>] @ 1.6 mm [63 mils] thick, applied in two coats.

## STORAGE

- Store TCI ShieldStrong (955-PL) in an environment where the ambient temperature does not fall below 41° F (5° C) or reach above 86° F (30°C)
- Never Store chemical containers in an environment exposed to the weather or direct sunlight

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## APPLICATION

### Surface preparation:

- Power wash substrates using a minimum of 5000 psi, sand blast, or use a mechanical bristle brush to remove existing coatings, dust, laitance, grease, waxes, and any other foreign particles from the substrate surface.
- Concrete substrates must be sound and clean. Remove all spalled or fractured areas.
- Existing cracks within concrete substrates (if dormant) can be bridged by TCI ShieldStrong (955-PL). The thickness of the coating system shall be proportioned depending on the width of the existing crack or gap to be bridged. It is recommended to use TCI ProTecStrong (855-SPL) for bridging large gaps or cracks.

### Mixing:

- Mix TCI ShieldStrong (955-PL) components, resin (component 'A'), and hardener (component 'B') for at least 5 minutes.
- Always mix pre-weighed kits in their entirety to avoid human errors in proportioning the product components.
- Mix the product in quantities according to the rate of application by the installation team.

### Environmental conditions

- The coating system can be applied on damp substrates.
- No active leaks or running water is allowed.
- Maintain a dry dehumidified environment and maintain the ambient temperature at a minimum of 5° F (2.8° C) above the dew point.
- The surface temperature of the substrate shall not fall below 40° F (4° C). Don't apply the protective coating if the substrate surface temperature is above 100° F (38° C).
- Maintain the required environmental conditions of substrate surfaces for at least 24 hours after the installation has been completed.

### Installation:

- There is no need to prime substrates, TCI ShieldStrong (955-PL) can be applied directly after cleaning and prepping the substrate.
- Substrates can be in damp conditions. However, running water from cracks must be stopped before applying the coating system.
- Apply the product within the pot-life time.
- Apply the product using manual trowels, brushes, rollers, squeegees or otherwise use spray guns & trowels.
- The coating thickness varies depending on the substrate conditions and the aim of application.
  - For new construction, or non-structural repair of existing facilities, TCI 955-PL is recommended to be applied in 2 coats at a minimum thickness of 0.8mm per coat, a total of 1.6mm for 2 coats.
  - When bridging holes, cracks, or any other irregularities, the thickness of the coating system shall be proportioned as per design. TCI Carbon Fibre Technologies can provide technical support to prepare the design documents. Use TCI ProTecStrong 855 for large gap/crack bridging.
- The maximum number of coats is unlimited.

- Successive coats must be applied within the recoat window of 48 hours.

### **Final cure and return to service**

Allow 72 hours for final cure before returning to service, depending on conditions.

### **NSF/ANSI/CAN 61 CERTIFICATION:**

Limitations:

- Minimum pipe diameter of 20 in [508 mm]
- Minimum tank size of 1,000 gallons [3,785 L]

### **LIMITED WARRANTY**

Ten (10) year material replacement warranty is available. For complete details contact [info@tcicarbonfibre.com](mailto:info@tcicarbonfibre.com). Copy is furnished upon request.

#### **Legal Disclaimer**

Keep product's containers tightly closed, keep product's out of reach of children, product's are not for internal consumption, product's are for industrial use only, product's are for professional use only. IN CASE OF EMERGENCY: Call CANUTEC +1 (613) 996-6666. Prior to each use of any product of Technical Construction Infrastructure Inc. ("TCI"), user's must read and follow the warnings and instructions on the product's most current product label, specification, product's datasheet, product's safety datasheet, and product's material safety data sheet. Current safety datasheet, datasheet, and other TCI product literature can be obtained by emailing [info@tcicarbonfibre.com](mailto:info@tcicarbonfibre.com), or by calling +1 (905) 997-5800. The information included herein is for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. TCI cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information.