POLY-TUFF SYSTEMS INTERNATIONAL
HIGHWAY DIVISION

TuffStrength™

Concrete and Asphalt, Crack Injection Adhesive

1.01 DESCRIPTION

TuffStrength™ is a two component, low viscosity, waterproof, urethane consisting of equal parts of Side A, a diphenylmethane di-isocynate urethane pre-polymer and of Side B, a polyether diols triols. TuffStrength™ is 100% solids and contains no VOCs. Please use the correct product grade that complies with VOC regulations as per federal, state, county and city regulations/codes at the place of installation of product.

1.02 FEATURES

- Cartridges Git Standard Caulking Guns
- Convenient Cartridges that Mix in the Nozzle
- Easy 1 To 1 Mix Ratio

1.03 USES

- Gravity Feed Cracks for Asphalt, Concrete and Masonry Horizontal Repairs
- Low-Pressure Injection for Cracks in Concrete and Masonry

1.04 COLOR

Gray

1.05 PACKAGING

22-ounce cartridges
Bulk gallons

1.06 COVERAGE GUIDE

Varies depending on crack depth and width

Reference only: 22-ounce cartridge kit (1/16" x 1" [0.16-2.52 cm] crack, will yield approx. 50 LF)

1.07 PREPARATION

Method of Cleaning: Saw cut or hammer the perimeter of the repair site back to sound concrete, using abrasive blasting remove loose concrete, debris, dirt, and dust using a minimum 150 psi continuously dry compressed air. Wet saw cut is NOT recommended unless sufficient time for drying is allowed.

Level of Cleanliness: Removal all loose and foreign materials by profiling surfaces in accordance with ICRI Guide 03732 to a minimum of CSP 3 by abrasive blasting.

Moisture content of structure: Maximum moisture content is 5% measured by a moisture meter. Concrete may be dried with a propane torch as necessary to achieve this. Only place **TuffStrength™** in temperatures between 40-100°F (4.44-37.88°C) and on concrete with a surface temperature at least 5°F (-15°C). above the dew point and avoid application over damp surfaces.

Concrete surfaces being prepared must be fully cured 28 days and fast setting concrete surfaces being prepared must be fully cured 7 days. For applications over previously installed polymers, the polymer surfaces must be cleaned, abraded and vacuumed prior to placement.

1.08 APPLICATION

PUMP APPLICATION:

1. Pre-application: Pre-condition both drums of Sides A and B **TuffStrength™** to 50-70°F (10-21.11°C) before use. Using the stir stick provided to mix Side B for a minimum of 5 minutes prior to initial use of Side B drums.
2. Using the pump dispensing machine, with the manifold and static tube removed, perform the 1 to 1 ratio test of Sides A and B by pumping about a quart into two separate recipients and verify the machine is pumping equal volumes in each before proceeding with the repair.
3. Place and level out approved aggregate to within about 1/4" (0.65 cm) of surrounding surface and using the machine, dispense **TuffStrength™** into the repair site completely immersing the aggregate. It is not necessary to use **TuffStrength™** as a primer.
4. For repair sites greater than 3" (7.62 cm) deep apply aggregate and **TuffStrength™** in 3" (7.62 cm) lifts without waiting for a cure of previous lift and trowel level with surrounding surface and avoid overfilling.
5. For topping sand use top rock or bagged US Silica washed and dried coarse sand and add to refusal.

Note: With the addition of catalyst to the B side drum of **TuffStrength™** by PSI before shipping, the installation can typically be ready for traffic in about 20 minutes at 70°F (21.11°C). with the cure faster in warmer temperatures and slower in colder temperatures.

CARTRIDGE APPLICATION:

These cartridges are designed to repair and seal cracked concrete and asphalt with a thin polymer, applied using a 22-oz. dual cartridge. Both products restore concrete and asphalt strength by penetrating and rebonding fine cracks.

1.09 EFFECTS OF TEMPERATURE ON SET TIME

TEMPERATURE	SET TIME	RETURN TO SERVICE
80-100°F (26.66-38.88°C)	3 min	15 mins
60-80°F (20.55-26.66°C)	5 min	25 min
40-60°F (4.44-20.55°C)	7 min	40 min
20-40°F (-6.66-4.44°C)	10 min	60 min

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1.10 CLEAN UP

For the machine, clean the three manifold ports and threads on the tube ends daily after use with acetone. Flush Side A pump and lines through the manifold with vegetable oil when storing machine more than 3-4 weeks between uses.

For hand tools, wipe clean with a dry cloth before cure. The cured material must be removed mechanically. Do not attempt to burn off cured material.

1.13 STORAGE AND SHELF LIFE

The material should be stored between 40-90°F (5-33°C) in a cool, dry area away from direct sunlight. For best results, condition material to 65-85°F (18.33-29.44°C) before using. The shelf life of properly stored, unopened containers is 12 months

1.14 LIMITATIONS

DO NOT place at temperatures below 40°F (5°C) or if the temperature is expected to fall below 40°F (5°C) in the next twenty four hour period unless special provisions are followed. Maximum substrate temperature 95°F (45°). Concrete must be fully cured (21-28 days). Color may alter due to UV exposure or variations in light. NOT an anchoring adhesive.

DO NOT EXPOSE TO OR APPLY NEAR FIRE OR FLAMES. FOR WELL VENTILATED OR EXTERIOR USE ONLY!

READ SDS PRIOR TO USING PRODUCT. KEEP OUT OF THE REACH OF CHILDREN.

1.15 PHYSICALS

TEST	Minimum Requirements	Results
Resilience (ASTM C579-01)	70%	Pass
Compressive Strength (ASTM C-579-01 Mod) 5 Hours 24 Hours	 500 psi (3.45 MPa) 2000 psi (14 MPa)	 2,700+ psi (18.6+ MPa) 6,400+ psi (44+ Mpa)
Tensile Strength (ASTM D638) 7 Days	150 psi (1 MPa)	1,100+ psi (7.6+ MPa)
Tear (ASTM D624) 7 Days	7kN/m (40 lbs/in)	150+ lbf/in (26+kN/m)
Pot Life (Gardeo GT-S gel timer)	5 minutes	Pass

Note: Physical Test Requirements. Elastomeric concrete will conform to the following physical test requirements per NYS DOT Standard Specification 701-11:
*The physical information shown in the column above in the table below are the results of the New York State DOT Materials Testing Laboratory test.

Please read all information in the General & Safety Guidelines, Technical Data Sheets, Guide Specifications and Safety Data Sheets (SDS) before applying material. PSI Products are for "Professional Use Only" and preferably applied by professionals who have prior experience with PSI Products or have undergone training in application of PSI Products. Published technical data and instructions are subject to change without notice. Contact your local PSI representative or visit our website for current technical data, instructions, and project specific recommendations.