



# TuffPlug™

## Polymeric Header Nosing & Deck Patching System

### 1.01 DESCRIPTION

TuffPlug™ is a 1:1 ratio, 100% solids, low modulus, low viscosity, flexible, polymer-joint system designed to accommodate minimum structure movement ( $\pm 1"$ , 2.54 cm) while providing a smooth, flexible, watertight seal. TuffPlug™ combines the use of a traffic-bearing plate or membrane with a special aggregate reinforced rapid setting polymers, offering minimal closure times. 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 USES

- Asphalt Overlay Projects
- Bridges, Parking Decks, and Ramps
- Eliminating Cumbersome Steel Joints
- Repair and Maintenance of Existing Joints

### 1.03 FEATURES

- Chemical Resistant
- Exceptional One Day and Ultimate Physicals
- Extends the Service Life of Decks
- Extremely Durable Bonds
- Fast Setting
- Good Chemical Resistance to Icing Solutions
- Low Dead Load in Suspended Structures
- Minimal Shrinkage Upon Cure
- No Heated Equipment Required
- No Special Tools Required
- Non-Slip Finish
- Open to Traffic: 1 Hour
- Pre-Measured Packaging of Components
- Rapid Strength Development in any Weather
- Resistant to Automotive Fluids
- Self-Priming in Most Conditions
- Substantial Cost Savings Over New Concrete
- Zero VOC

### 1.04 TECHNICAL DATA

Exceeds the requirements of ASTM D-6297-01

### 1.05 PACKAGING

**0.5 cuft (0.0142 cum) kit:** is made up of equal volumes of Side-A and Side B polymers in jugs and Side C Aggregate in 50 pounds (13.61 kg) poly-lined bags. (All aggregates are pre-treated).

**1.0 cuft kit (0.028 cum) kit:** is made up of 1 gallon (3.78 liters) of Side-A and Side B polymers in jugs and Side C Aggregate is packaged in two 50 lbs (22.78 kgs) poly-lined bags.

The entire contents come in a 6-gallon pail, which the material can be mixed with the PSI's **Quickie Pail Mixer** or a 1/2 hp heavy-duty drill. Bulk Mortar and Overlay Kits are also available in 10, 30, 100, & 250 gallon (37.85, 1113.56, 378.54, 946.36 liters) vessels. Treated Sands &

Aggregates are available in 25 & 50 (11.34 & 22.67 kg) pound sacks, 2500 pound (1134 kg) bins, and 2500 pound (1134 kg) Super Sacks.

### 1.06 COLOR

Gray or Black

### 1.07 PREPARATION

The concrete must be sound and free of all foreign material, including oil, grease, dust, laitance or other surface contaminants. Mechanically abrade the surface by grinding, abrasive blasting, or water blasting. All concrete of poor quality that is in contact with any reinforcing steel should be removed. Remove rust from exposed reinforcing steel by brushing or sandblasting. Apply PSI's **RustCheck™** permanent rust converter to any exposed steel. Deeply damaged areas can be repaired with **TuffMend™ VOH** or **TuffPox™ 8** prior to the joint installation. All surfaces to be repaired should be in a saturated surface dry (SSD), condition with no standing water on the surfaces. Prime all surfaces with **TuffPlug™ Primer**.

### 1.08 MIXING

Condition material to 65-85°F (18-29°C) for ease of mixing and optimum flow prior to using. **TuffPlug™** is mixed at the nozzle and applied using the PSI's **Dual Polymer Pump**. Hand mix kits are also available.

### 1.09 APPLICATION

Surface and ambient temperature must be a minimum of 40°F (4°C).

#### PUMP:

1. (Option 1) After the joint area has been properly prepped, place two beads of the **TuffSealant™ NS-1** Sealant on both sides of the joint opening per detail instructions. Embed the PSI's **TuffCarbon Plate™** Option into the sealant material centered over the joint opening.
2. (Option 2) For joint openings up to 1" (2.54 cm), apply the self-adhering PSI's **TuffStrip™** Membrane (4" [10.16 cm] minimum wide self-adhering joint seal membrane) symmetrically across the joint opening.
3. Fill the void with PSI's Polymer Treated Aggregate flush to the cavities surface.
4. Pump **TuffPlug™** evenly into the joint cavity.
5. Before the initial set begins, broadcast PSI's Polymer Topping

Sand on the joint surface for a non-slip finish.

\*\*\*If adjacent concrete surfaces have or have had excessive moisture, prime the joint interface with TuffPlug™ Primer or TuffPlug™ polymer, 10 minutes prior to the placement of the aggregates.

**TuffPlug™** is shipped in pre-measured 0.5 cuft (0.0142 cum) and 1 cuft (0.0284 cum) units. Mix these products ONLY in complete units. DO NOT THIN or add any solvents or other aggregates prior to mixing.

**0.5 cuft (0.0142 cum) kit:** Side A and Side B are packaged in equal jugs. Side C Aggregate is packaged in one 50 lb (22.78 kgs) poly-lined bag. Pour Side B Hardener into the mixing vessel containing Side A Resin. Mix material thoroughly for 3 minutes with a Jiffy mixer on a low-speed (300 rpm) drill motor until a uniform consistency is achieved. Pour liquids into **Mortar Mixer** making sure to remove all resins from sides and bottom of the pail with a spatula or similar tool. Introduce the half the fbag of Side C Aggregate prior to starting the mixer. Start mixer and slowly add the remaining bag of Side C Aggregate. Extreme care should be taken to ensure that the aggregate is mixed uniformly.

**1.0 cuft kit (0.028 cum) kit:** Side A and Side B are packaged in 1 gallon (3.78 liters) jugs. Side C Aggregate is packaged in two 50 lb (22.78 kgs) poly-lined bags. Pour Side B Hardener into the mixing vessel containing Side A Resin. Mix material thoroughly for 3 minutes with a Jiffy mixer on a low-speed (300 rpm) drill motor until a uniform consistency is achieved. Pour liquids into **Mortar Mixer** making sure to remove all resins from sides and bottom of the pail with a spatula or similar tool. Introduce the first bag of Side C Aggregate prior to starting the mixer. Start mixer and slowly add the remaining bag of Side C Aggregate. Extreme care should be taken to ensure that the aggregate is mixed uniformly.

#### 1.10 MINIMUM CLOSURE TIMES

Average Temperature in °F (°C):

\*It is highly recommended that all components be conditioned in

TEMPERATURE	WORKING TIME
85 °F + (29 °C+)	1/2 Hour
84-75 °F (29-24 °C)	3/4 Hours
74-65 °F (23-18 °C)	1 Hour
64-55 °F (18-13 °C)	1 1/2 Hours
54-45 °F (12-7 °C)	2 Hours
*44- °F (7°C -)	3+ Hours

advance of use to 75°F (24°C). This may take 48 hrs. It is to the contractors benefit to maintain the components at elevated temperatures prior to installation. At lower temperatures can become difficult to remove, pump, and mix properly.

#### 1.11 CLEANUP

Tools and Equipment: Clean before the **TuffPlug™** sets up using PSI's **Solvent 100**, PSI's **EnviroClean** or Acetone.

#### 1.12 STORAGE AND SHELF LIFE

Store in a horizontal position to prevent moisture accumulation on the drum head. The material should be stored between 40-95°F (4-35°C) in a cool, dry area away from direct sunlight. The shelf life of properly stored is 12 months from the date of manufacture. An excessive temperature differential and/or high humidity can shorten the shelf life expectancy.

#### 1.13 LIMITATION

Surface and ambient temperature must be a minimum of 40°F (4°C). Do not thin with any solvents. Avoid hazards by following all precautions found in the Safety Data Sheets (SDS), product labels, and technical literature.

#### 1.14 CAUTION

Do not dilute. Wear protective gloves and goggles. Avoid prolonged skin contact.

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

1.15 PHYSICALS	
Gel Time (Tex-614-J)	10 minutes
Compressive Strength (ASTM C-579, B)	
24 Hours	1710 psi (11.79 MPa)
7 Days	1820 psi (12.55 MPa)
28 Days	2140 psi (14.75 MPa)
Wet Bond Strength (Tex-618-J)	176 psi (1.21 MPa)
Compressive Stress (Tex-618-J) 7 days	733 psi (5.05 MPa)
Resilience, % (Tex-618-J)	92.7%
Thermal Compatibility	pass
Tensile Adhesion (ASTM D5329)	700% minimum

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.

#### LIMITED WARRANTY

PSI warrants its products to be free of manufacturing defects and that they will meet PSI current published physical and chemical properties. Seller's sole responsibility shall be to replace that portion of the product which proves to be defective. There are no other warranties by PSI of any nature whatsoever expressed or implied, including any warranty of merchantability or fitness for a particular purpose in connection with this product. PSI shall not be liable for damages of any sort, including remote or consequential damages resulting from any claimed breach of any warranty whether expressed or implied. PSI shall not be responsible for use of this product in a manner to infringe on any patent held by others. In addition, no warranty or guarantee is being issued with respect to appearance, color, fading, chalking, staining, shrinkage, peeling, normal wear and tear or improper application by the applicator. Damage caused by abuse, neglect and lack of proper maintenance, acts of nature and/or physical movement of the substrate or structural defects are also excluded from the limited warranty. PSI reserves the right to conduct performance tests on any material claimed to be defective prior to any repairs by owner, general contractor, or applicator.

#### DISCLAIMER

All guidelines, recommendations, statements, and technical data contained herein are based on information and tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty, either expressed or implied. It is the user's responsibility to satisfy himself, by his own information and test, to determine suitability of the product for his own intended use, application and job situation and user assumes all risk and liability resulting from his use of the product. We do not suggest or guarantee that any hazard listed herein are the only ones which may exist. Neither seller nor manufacturer shall be liable to the buyer or any third person for any injury, loss or damage directly or indirectly resulting from use of, or inability to use, the product. Recommendations or statements, whether in writing or oral, other than those contained herein shall not be binding upon the manufacturer, unless in writing and signed by a corporate officer of the manufacturer. Technical and application information is provided for the purpose of establishing a general profile of the material and proper application procedures. Test performance results were obtained in a controlled environment and PSI makes no claim that these tests or any other tests, accurately represent all environments.