POLY-TUFF SYSTEMS INTERNATIONAL
HIGHWAY DIVISION

TuffMend™ SP & MM

Horizontal Road and Deck Patching Mortar

1.01 DESCRIPTION

TuffMend™ SP & MM is a unique three component, rapid curing, non shrink, hybridized, polymer-based elastomeric concrete that cures to a dense, semi-flexible, weather-, abrasion- and impact-resistant polymer mortar for the repair of spalls on roadways, bridges, and parking decks. The combined TuffMend™ SP Side A & B polymers, when mixed with its Side C (Blended Aggregate) forms a mortar with excellent long-term installation properties for all types of repairs, or deep patches. TuffMend™ MM is the Machine Mix version with the exact same properties. 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

- Airfield & Highway Pavement Repairs
- Bridges and Ramps
- Freezer Floor Repairs
- Parking Structures
- Pavements & Marine Platforms

1.03 FEATURES

- Chemical and Impact Resistant
- Dries Tack-Free and Skid Resistant
- Excellent Water Repellency
- Fast Drying in any Temperature
- High-Load Bearing Capacity
- New as well as Old Concrete Surfaces
- Outstanding Anti-Spalling Properties
- Resists the Effects of Freeze-Thaw Cycling

1.04 TECHNICAL DATA

Meets: TxDot DMS- 6170 Type I Polymer Concrete
Exceeds ASTM C881 Type III (Mortar)

1.05 PACKAGING

0.5 cuft (.014 cum) kit: 1 gallon (3.78 liters) of Side A and B liquid, one 56 lbs (25.4 kgs) bag of Side C aggregate

1.0 cuft (.028 cum) kit: 2 gallon (11.34 liters) of Side A and B liquid, 2 56 lbs (25.4 kgs) bags of Side C aggregate

6-gallon (0.5 cuft or 0.0142 cum) kit: Equal volumes of Side-A and Side B polymers, 30 pounds (13.61 kg) of body aggregates, 20 pounds (9.07 kg) of 3/8" (0.96 cm) pea gravel, and a 6-pound bag (2.72 kg) of topping sand. (All aggregates are pre-treated). 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

Black or Concrete Gray

1.07 COVERAGE

0.50 cuft (0.0142 cum) kit and 1.0 cuft (.028 cum) kit

1.08 PREPARATION

All surface contamination must be removed by mechanical means, creating a surface profile of exposed sound aggregate that will provide a strong bond surface for the **TuffMend™ SP & MM**. It is recommended to profile surface according to ICRI Guide 03732 to a minimum of CSP 3 by abrasive blasting. Apply PSI's **RustCheck™** permanent rust converter to any exposed steel. Precondition the **TuffMend™ SP & MM** to 72°F (22° C) for 24 hours for best results. **TuffMend™ SP & MM** may be heated up to 100°F (37.88°C) to speed cure at colder temperatures. It is recommended to condition all components to 72° F (22°C) when the temperature is below 50° F (10°C).

1.09 MIXING

TuffMend™ SP & MM is shipped in pre-measured 0.5 and 1.0 cuft kits. Mix these products ONLY in complete kits. DO NOT THIN or add any solvents or other aggregates prior to mixing. Mix the 0.5 cuft kit (0.0142 cum) and and 1.0 cuft (.028 cum) kit per instructions and in the prescribed order on the pail. **TuffMend™ MM**- InstaMix machine for instant repairs.

1.10 APPLICATION

The blended batch must be applied to the surface in 5-10 minutes. Once spread out, working time will be approximately 1/2 hour depending upon temperature. It is extremely important that the material be thoroughly compacted. Care should be taken to assure good compaction on the vertical face of the joint and along the side of the block out or form. Just smoothing the top with a steel float is not compacting the mortar. A small margin trowel, wood block, or other means, can be used for compaction. When applying below freezing, as in a freezer, mix products outside the application area and dry surfaces of any condensation.

1.11 CURING/DRYING TIME

At 75°F (23.88°C) (substrate & air temperature), the mortar will cure

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sufficiently to accept traffic in two hours. Higher temperatures will shorten the cure while lower temperatures will lengthen the cure time.

For temperatures in excess of 100°F (37.88°C) or lower than 60°F (20.55°C), contact PSI for recommended procedures and cure time.

1.12 CLEAN UP

All tools, other application or mixing equipment must be cleaned at frequent intervals and while **TuffMend™ SP & MM** remains soft and uncured. Clean with PSI's **EnviroClean™**, or locally approved solvent.

1.13 STORAGE AND SHELF LIFE

The material should be stored between 40-95°F (4-35°C) in a cool, dry area away from direct sunlight. For best results, condition material to 65-85°F (4-35°C) before using. The shelf life of properly stored, unopened containers is 12 months from the date of manufacture. An excessive temperature differential and/or high humidity can shorten Excessive temperature differential and or high humidity can shorten the shelf life expectancy.

1.14 LIMITATIONS

- Consult PSI representative when mixing or placing outside of the temperature recommendations listed.
- Contact PSI representative before applying as a repair mortar if concrete is less than 28 days old.
- Do not thin with solvents
- For professional use only
- Moisture sensitive

1.15 CAUTION

READ SDS PRIOR TO USING PRODUCT

Use with adequate ventilation. Wear protective clothing, gloves, and eye protection. (Goggles, Safety Glasses and/or Face Shield) Keep out of the reach of children. Do not take internally. In case of ingestion, seek medical help immediately. May cause skin irritation upon contact, especially if prolonged or repeated exposure. If skin contact occurs, wash immediately with soap and water and seek medical help as needed. If eye contact occurs, flush immediately with clean water and seek medical help as needed. Dispose of waste material in accordance with federal, state and local requirements. Cured resins are Innocuous. Dispose of waste material in accordance with federal, state and local requirements.All tools, other application or mixing equipment must be cleaned at frequent intervals and while **TuffMend™ SP & MM** remains soft and uncured. Clean with PSI's **EnviroClean™**, or locally approved solvent.

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

1.16 PHYSICALS	
Compressive Strength (ASTM C-579, B)	
24 Hours	1710 psi (11.8 MPa)
7 Days	1820 psi (12.55 MPa)
28 Days	2140 psi (14.76 MPa)
Gel Time (Tex-614-J)	9 minutes
Wet Bond Strength (Tex-618-J)	
7 Days	176 psi (1.21 MPa)
Compressive Stress at 0.1 in (Tex-618-J)	
7 Days	733 psi (5.0 MPa)
Resilience, % (Tex-618-J)	
7 Days, % (Tex-618-J)	97.2%
Thermal Compatibility (ASTM C884)	
7 Days	Pass
Flexural Strength	
24 Hours	740 psi (5.10 MPa)
28 Days	1008 psi (6.95 MPa)
Bond Strength	
24 Hours	203 psi (1.40 MPa)
28 Days	355 psi (2.45 MPa)
Modulus	
24 Hours	12270 psi (84.60 MPa)
28 Days	23641 psi (162.99 MPa)
Specific Gravity	1.84
Absorption %	0.33%
Chemical Resistance ASTM D 471, 25°C (77°F) after 22 hrs Chemical Effects	
Deicers	None
Motor Oil	None
Sodium Chloride Solution (5%)	None
Hydraulic Brake Fluid	None

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.