



POLY-TUFF SYSTEMS
INTERNATIONAL
HIGHWAY DIVISION

TuffDeck™ FC

High Friction Overlay for Bridges & Decks

DESCRIPTION

TuffDeck™ FC is a 1:1 ratio, 100% solids, low modulus, low viscosity, moisture tolerant, rapid setting, low viscosity epoxy binder and adhesive formulated as a Single and Multi-layer Hi-Friction Skid Resistant Overlay providing minimal closure times.

USES:

- Bride Decks, Parking Garages
- Bike Paths, Colored Bus Lanes
- Parking Ramps, Roadways

FEATURES:

- Self Priming
- Light Weight Protective Overlay
- Low Dead Load
- Reduced Closure Time
- Rapid Strength Development in all weather
- Long Term Protection To Icing Solutions
- Zero VOC

TECHNICAL DATA:

Meets AASHTO Task Force 34 Epoxy Polymer Concrete Bridge Deck Overlays, ACI 548 Type EM (Epoxy Multi-Layer) Polymer Overlay, AASHTO M235, Type III, Classes B & C specifications. ASTM C-881, Type III, Grade I, Classes B & C.

COVERAGE GUIDE:

SS-3037- using Automated Application Vehicle: Apply the binder resin to a uniform thickness of 50-65 mils (25-32 sq.ft/gal). Apply the calcined bauxite within 3 ±1 sec. of the base resin binder application onto the pavement.

By Hand Or Spray Bar:

Layer 1: 2-1/2 gallons per 100 sq.ft (1 gal. /40 sq.ft)

Aggregate - 10 lbs/ sq.yd

Layer 2: 5 gallons per 100 sq.ft (1 gal. /20 sq.ft)

Aggregate - 14 lbs/ sq.yd

(See aggregate selection charts by "Others" for options)

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 waterblasting. 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 **RustCheck™** permanent rust converter to any exposed steel, prior to overlaying with patching or overlaying the **TuffDeck™ FC**. Patches for spalls and repair areas greater than 1/2" in depth should be saw cut

1-1/2" deep depending on the depth of the repair and at least 2" beyond the perimeter of the repair area. USE CAUTION TO AVOID SAW CUTTING ANY STEEL. Deeply spalled areas can be repaired with **TuffPatch™ DOT**, **TuffCrete™ II**, or **TuffCrete™ 6170** prior to the overlay. All surfaces to be repaired should be in a saturated surface-dry (SSD) condition with no standing water on the surface.

MIXING:

Condition material to 65°F - 85°F (18°C - 29°C) for ease of mixing and optimum flow prior to using. Premix each component for thirty seconds, then place 1 part by volume of Component A and 1 part by volume of component B into a clean pail and mix for three minutes at a low speed using either the PSI Rapid Pail Mixer or a 1/2+ hp heavy-duty drill with a "Jiffy" Paddle utilizing the PSI™ Easy Stand! Mix only what can be used within the pot life.

PLACEMENT:

Surface and ambient temperature must be a minimum of 50°F (10°C). Utilize one of the following methods for the application of the and aggregate wearing course, as applicable.

1) Hand mixing and application:

The **TuffDeck™ FC** components, Part A and Part B, shall be premixed and proportioned to the correct ratio, as stated on the TDS. Mix material using a low speed, high torque drill fitted with the PSI "Jiffy" Paddle or a helical stirrer. This method shall be used where truck mounted application machines are not applicable to the specified locations because of logistics and restrictions. The mixed components shall be hand applied onto a prepared pavement surface at an application coverage rate of 40 sq.ft/gal. Hand applied base binder shall be uniformly spread onto the substrate surface by means of a 1/4" notched squeegee. Immediately, spread the high friction surfacing aggregate onto the epoxy at a minimum rate of 10 lbs/sy. After the initial cure of the first course, remove all excess aggregate and apply course #2, spreading the neat **TuffDeck™ FC** at a coverage rate of 20 sq.ft/gal., once again broadcasting the select aggregate to the point of rejection. After allowing the system to cure 2.5 hrs for course #1 and 4 hrs for course #2 @ 70°F (22°C) and after all the aggregate has been removed it can be opened up to traffic.

2) Mechanical mixing and application:

TuffDeck™ FC can be applied by a truck mounted application machine in accordance with SS-3037 onto the pavement section to be treated in varying widths at a uniform application thickness. Operations shall proceed in such a manner that will not allow the **TuffDeck™ FC** to separate in the mixing lines, cure, dry, or otherwise impair retention bonding of the high friction surfacing aggregate. The mixed components shall be applied mechanically onto the prepared pavement surface at a minimum coverage rate of 25-32 sq.ft/gal for a one coat system. Immediately, spread the high friction surfacing aggregate onto the installed **TuffDeck™ FC** epoxy base binder, at a minimum rate of 1-1.5 lb/sq.ft.

CURING:

Minimum Closure Times: weather average temperature of deck, epoxy, and aggregate components:

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

**It is highly recommended that all components be conditioned in 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. At lower temperatures, the resin will be become difficult to remove from containers and to mix properly.*

CLEAN UP:

Tools and Equipment: Clean before the epoxy sets up using Xylene or PSI EnviroClean.

LIMITATIONS:

Minimum substrate temperature is 50°F (10°C). Do not thin. Solvents will prevent proper cure. Use oven-dried aggregate. Material is a vapor barrier after cure. Do not place **TuffDeck™ FC** on magnesium phosphate cement concrete.

PHYSICALS:

Shelf Life: 2 years in original unopened container.

Storage Conditions: 40°F - 95°F (5°C - 35°C).

Condition material to: 65°F - 85°F (18°C - 29°C) before using.

Mix Ratio 1:1 by volume

PACKAGING: Available in 10 gal, 110 gal, & 550 gal kits

COLOR:

Amber

STORAGE:

The material should be stored between 40°-95°F (5°-35°C) in a cool, dry area away from direct sunlight.

SHELF LIFE:

Shelf life of properly stored, unopened containers is 24 months. Excessive temperature differential and/ or high humidity can shorten the shelf life expectancy.

CAUTION:

READ SDS PRIOR TO USING PRODUCT

Component A - Irritant • Component B - Corrosive

Product is a strong sensitizer. 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 irrita-

tion upon contact, especially prolonged or repeated. 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.

SAFETY:

Eyes: Hold eyelids apart and flush thoroughly with water for 15 minutes. Skin: Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water.

Inhalation: Remove person to fresh air. Ingestion: Do not induce vomiting. In all cases, contact a physician immediately if symptoms persist. Obtain, read, and understand the Safety Data Sheet (SDS) before use of this or any other **Poly-Tuff Systems International** product.

WARRANTY:

Due to the use of this product beyond our control, we assume no liability for damages of any kind, and the user accepts the product "as is" and without warranties, expressed or implied, from either **Poly-Tuff Systems International** or its agents. The suitability of the product for an intended use shall be solely up to the user. Our only obligation shall be to replace any material proved defective, with our liability limited to the purchase price of materials supplied by us.

Mixing Ratio	1:1
Viscosity	2,000 cps @ 77°F
Gel Time (60 g mass)	25 minutes
Tack Free Time (73°F or 23°C)	3 to 5 hours
Tensile Properties (ASTM D638)	7 day cure
Tensile Strength	2,800 psi (19.3 MPa)
Tensile Elongation	40%
Bond Strength (ASTM C882)	
2 day cure	2,000 psi (13.8 MPa)
14 day cure	2,800 psi (19.3 MPa)
Compressive Properties (ASTM D695)	
Compressive Strength	5,000 psi (34.5 MPa)
Compressive Modulus	110,000 psi (760 MPa)
Compressive Strength (ASTM C579)	
3 hour cure	1,500 psi (10.3 MPa)
24 hour cure	5,000 psi (34.5 MPa)
Bond Strength (ASTM C1583/ACI 503R)	300 psi (2.0 MPa)
Flexural Strength (ASTM D790)	3,000 psi (20.9 MPa)
Shrinkage on Cure (ASTM D2566)	0.20%
Thermal Compatibility (ASTM C884)	Pass
Heat Deflection Temperature (ASTM D648)	120°F (49°C)
Water Absorption (ASTM D570)	0.2% (24 hr)
Chloride Ion Permeability (AASHTO T277)	0.0 coulomb

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 users 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.