E-TUFF® PASTE
Doweling & Anchoring Epoxy

1.01 DESCRIPTION
E-Tuff® Paste is a two component, high strength, moisture insensitive, high modulus, multi-purpose, non-sag, structural epoxy system designed to offer exceptional strength in anchoring, and bonding applications. 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
- Anchoring Dowels, Bolts, Reinforcing Steel and Threaded Rods
- Setting Injection Ports and Sealing Cracks Prior to Epoxy Injection
- Vertical and Horizontal Structural Bonding and Patching

1.03 FEATURES
- 100% Solids
- Clean and Easy to Use and Reuse
- Easy Dispensing
- Excellent Adhesion
- Fast Setting, High Strength, High Modulus
- Friendly 1:1 Mix Ratio
- Made in America
- Moisture Tolerant
- No Volatile Organic Compounds (VOC’s)
- Non-Sag Gel Consistency

1.04 TECHNICAL DATA
E-Tuff® Paste meets the current ASTM C881 and AASHTO M235 Types I, II, IV & V Grade 3, Classes B & C specifications.

1.05 COLOR
Concrete Gray

1.06 PACKAGING
- 600 ml side-by-side cartridge
- 1500 ml side-by-side cartridge
- 1-gallon kit: 1/2 gallon (1.89 liters) of Side A and 1/2 gallon (1.89 liters) of Side B
- 2-gallon kits: 1 gallon (3.78 liters) of Side A and 1 gallon (3.78 liters) of Side B
- 10-gallon kits: 5 gallon (18.9 liters) of Side A and 5 gallon (18.9 liters) of Side B

1.07 COVERAGE
Please see E-Tuff® Paste Installation section 1.08 for doweling and pasting.

1.08 PREPARATION
Surface Preparation: Surfaces to be bonded must be clean and structurally sound. Remove all oil, grease, dirt, laitance, curing compounds, and any other foreign matter by sandblasting, mechanical abrasion or hydro blasting.

Hole Preparation: Bolts, rebar or threaded rod should be free of dirt, grease, oil of other foreign material. DRILL hole to specified diameter and depth; BLOW dust from the bottom of the hole with oil-free compressed air for at least four seconds; BRUSH clean with a nylon brush removing all dust and loose material; BLOW again from the bottom of the hole for at least four seconds. REPEAT BRUSH and BLOW procedures when necessary.

1.09 MIXING
Insert the cartridge into the dispensing gun. Remove the plastic caps and dispense a small amount of material until an even flow of black and white material is achieved. Place the mixing nozzle onto the cartridge then slide the nut over the nozzle and thread the nut onto the cartridge. To achieve maximum flow, break off the tip of the mixing nozzle to the largest diameter that will fit into the hole or screen. Dispense into a disposable container until a uniform gray is achieved with no streaks.

1.10 APPLICATION
Bonding: Apply the E-Tuff® Paste neat and work into the substrate. The glue line should not exceed 1/8” (0.3 cm).

Anchoring: For dry or damp hole, fill the hole 1/2 to 2/3 full from bottom up with E-Tuff® Paste. For water-filled hole, fill hole completely full from bottom up. Insert clean anchor turning slowly until the anchor contacts the bottom. DO NOT DISTURB anchor until E-Tuff® Paste has fully cured. The hole depth should be approximately 9 times the bolt diameter. The hole diameter should be approximately 1/8” (0.3 cm) larger than the threaded rod diameter. Ensure the holes are properly prepared, (drilled, brushed and blown out) prior to preparing the epoxy cartridge.

Into Concrete: Dispense the material from the bottom of the hole. Fill approximately 5/8 of the hole depth while slowly withdrawing the nozzle. Insert the bolt, or dowel by turning it slowly during insertion. After insertion, the hole should be completely filled with E-Tuff® Paste and devoid of all air pockets or voids. Do not disturb or bolt up until cured. Into Hollow Block: The cartridge is prepared as for concrete. The mixing nozzle is inserted into the bottom of the screen. Completely fill the screen while withdrawing the nozzle. Insert the epoxy filled screen into the hole. Insert the threaded rod to the bottom of the screen while turning slightly clockwise. Do not disturb or bolt up until E-Tuff® Paste
and devoid of all air pockets or voids. Do not disturb or bolt up until cured.

1.11 CLEAN UP
Uncured E-Tuff® Paste can be removed from tools and equipment with PSI’s EnviroClean™ or Isopropyl alcohol, xylene, or mineral spirits.

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

1.13 LIMITATIONS
Minimum substrate temperature is 40°F (5°C). Precondition E-Tuff® Paste to 65–95°F (18–35°C) for easy-dispersing. Always test a small amount of E-Tuff® Paste to verify that the product has been thoroughly mixed and will harden properly before proceeding. Do not thin with any solvent.

1.14 CAUTION
Avoid breathing of vapors. Forced local exhaust is recommended to effectively minimize the exposure. NIOSH approved, organic vapor respirators and forced exhaust are recommended in confined areas, or when conditions (such as heated polymer, sanding, etc.) may cause high vapor concentrations. Do not weld on, burn or torch the E-Tuff® Paste or any epoxy material. Hazardous vapor is released when an epoxy is burned. Avoid skin or eye contact. Wash skin with soap and water if contact occurs. If eye contact occurs flush with water for 15 minutes and obtain medical attention. Read and understand all caution on can labels and safety data sheets (SDS) before using this material.

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 PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity</td>
<td>Gel/Paste</td>
</tr>
<tr>
<td>Gel Time 60 gram Mass (ASTM C881)</td>
<td>23 Minutes</td>
</tr>
<tr>
<td><strong>CURED PROPERTIES</strong></td>
<td></td>
</tr>
<tr>
<td>Initial Cure Time (73°F or 23°C)</td>
<td>2 to 3 hours</td>
</tr>
<tr>
<td>Final Cure (73°F or 23°C)</td>
<td>24 hr</td>
</tr>
<tr>
<td>Compressive Strength (ASTM D-695)</td>
<td>10,520 psi (72.3 MPa)</td>
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<tr>
<td>Compressive Modulus (ASTM D-695)</td>
<td>591,000 psi (4078 MPa)</td>
</tr>
<tr>
<td>Bond Strength at 2 Day (ASTM C882)</td>
<td>2,850 psi (19.7 MPa)</td>
</tr>
<tr>
<td>Bond Strength at 14 Days (ASTM C882)</td>
<td>3,220 psi (22 Mpa)</td>
</tr>
<tr>
<td>Elongation (ASTM D-638)</td>
<td>1.58%</td>
</tr>
<tr>
<td>Water Absorption (ASTM D-570)</td>
<td>0.1%</td>
</tr>
<tr>
<td>Heat Deflection (ASTM D-648)</td>
<td>143°F (61.7°C)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>1/4” (0.65 cm) no-sag gel</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>7,559 psi (51.7 MPa)</td>
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<tr>
<td>Tensile Elongation</td>
<td>1.59%</td>
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<tr>
<td>Shear Strength (ASTM D732)</td>
<td>2,800 psi (19.3 MPa)</td>
</tr>
<tr>
<td>Shrinkage on Cure (ASTM D2566)</td>
<td>0.001</td>
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<tr>
<td>Thermal Compatibility (ASTM C884)</td>
<td>Pass</td>
</tr>
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</table>

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 the 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.

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