



POLY-TUFF SYSTEMS
INTERNATIONAL
HIGHWAY DIVISION

TuffPaste™

Bug Hole & Bonding Epoxy

DESCRIPTION

TuffPaste™ is a two-component, 1:1, non-sag, high modulus, high strength, 100% solids, moisture-tolerant, solvent free, structural epoxy adhesive developed specifically for use as a matrix with the TuffWrap Structural Strengthening System.

USE:

- Level small surface defects & bug holes
- Provide a smooth surface to apply FRP
- Sealing of cracks and injection port setting
- Bonding of concrete, metals, wood
- Grout bolts, dowels, and pins.

FEATURES:

- Excellent adhesion to most substrates
- Ideal for Vertical & Overhead repairs
- Pick proof sealant
- Fast Set or Extended pot life available
- High abrasion and shock resistance.

TECHNICAL DATA:

TuffPaste™ conforms to ASTM C-881, Type I, II, IV, and V, Grade 3, Classes B & C, & AASHTO M-235

COVERAGE GUIDE:

CFRP Laminates: 100 sq.ft per gallon

Flat Bonding: 125 sq.ft per gallon

Crack Pasting: 50 sq.ft per gallon

1 gallon yields: 231 cu. in. of paste adhesive

PREPARATION:

Maximum adhesion is obtained when surfaces to be bonded are free of oil, grease, rust, loose particles, and other contaminants. Abrasive blast cleaning and mechanical removal methods are recommended.

MIXING:

Before blending **TuffPaste™** Resin and Hardener, stirring may be necessary, especially in case of filled materials. Place 1 Side A (Resin) and 1 Side B (Hardener) into a clean cylindrical container according to the specified MIX RATIO. Mix for 2-1/2 to 3 or until thoroughly blended using either the PSI Rapid Pail Mixer "or" a 1/2+ HP heavy-duty, variable speed drill with the PSI Mortar Paddle utilizing the PSI 1 Man Stand. Mix at slow speed (less than 850 rpm) to avoid air entrainment. If hand

mixing, periodically scrape the walls and the bottom of the container to avoid unmixed material which will result in soft spots after curing. For room temperature cure systems, once the Resin and Hardener are mixed together, an exothermic reaction takes place developing some heat which accelerates the process of cure. The viscosity of such a self-heating system first decreases then, at the end of the GEL TIME, increases until the material gels. At this moment the temperature of the product keeps rising, and in the case of large batches can result in overheating with unpleasant fumes and smoke. Do not mix more material than you are able to apply in one step. Remember - you will have less working time at higher temperatures.

PLACEMENT:

TuffPaste™ can be applied by putty knife, trowel, or bulk caulking gun. Filling bug holes, use very thin layers and work into the hole thoroughly in order to prevent bridging the holes rather than filling. As a structural adhesive. Apply the neat mixed **TuffPaste™** to the prepared substrates. Work into the substrate for positive adhesion. Secure the bonded unit firmly into place until the adhesive has cured. Glue line should not exceed 1/8". To seal cracks for injection grouting, place the neat mixed material over the cracks to be pressure injected and around each injection port. Allow sufficient time to set before pressure injecting. For routed vertical and overhead patching - Place the prepared mortar in void, working the material into the prepared substrate, filling the cavity. Strike off level. Lift line should not exceed 1/8".

CURING/DRY TIME:

Tack Free Time: 2-3 hours

Initial Cure 24 hours

Final Cure 7 days

CLEAN UP:

Uncured **TuffPaste™** can be removed from tools and equipment with **EnviroClean™**, Isopropyl alcohol, xylene, or mineral spirits. Dispose of in accordance with local, state, and federal disposal regulations. Mechanical removal is necessary for cured material.

PACKAGING:

2, 10 gallon units & 22 oz. dual cartridge

COLOR:

Concrete Gray

Special colors available on request

STORAGE:

Store **TuffPatse™** in its original containers and keep tightly closed.

Do not allow the accumulation of water, dirt or other contaminants.

Store at 40°F - 90° F (4°C -35°C).

SHELF LIFE:

The shelf life of properly stored **TuffPatse™** is two years from date of manufacture in original unopened container.

LIMITATIONS:

Do not thin with solvents, as this will prevent cure. Not recommended for any application where there may be a sustained tensile load, including overhead applications. Not designed to stop seeping or flowing water. Remove standing water before applying in moist or damp conditions. Always test a small amount to insure that the product is mixed thoroughly and that the material will harden properly before proceeding. Minimum age of concrete must be 3-7 days, depending on curing and drying conditions.

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 **TuffPatse™** 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. Please read the Safety Data Sheet (SDS) before use of this or any other Poly-Tuff Systems International product.

KEEP OUT OF REACH OF CHILDREN.**IMPORTANT NOTE:**

While all reasonable care is taken in compiling technical data on the Company's products, all recommendations or suggestions regarding the use of such products are made without guarantee, since the conditions of use are beyond the control of the Company. It is the user's responsibility to satisfy himself that each product is fit for the purpose for which he intends to use it, that the actual conditions of use are suitable,

and that the information relating to each product has not been altered or superseded.

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.

TYPICAL PROPERTIES:	
Mix Ratio	1:1
Mixed Color	Gray
Viscosity	Gel/Paste
Gel Time (ASTM 881)	12 Minutes
TYPICAL CURED PROPERTIES	
Initial Cure Time (73°F or 23°C)	2 to 3 hours
Final Cure	3 Days
Compressive Strength (ASTM D-695)	12,250 psi
Compressive Modulus (ASTM D-695)	300,000 psi
Bond Strength at 1 Day (ASTM 882)	1,925 psi
Bond Strength at 7 Days (ASTM 882)	2,850 psi
Elongation (ASTM D-638)	1.58%
Water Absorption (ASTM D-570)	0.1%
Heat Deflection (ASTM D-648)	140°F
Viscosity	1/4 inch no-sag gel
Gel Time (60 g mass)	10 minutes
Tensile Strength	7,559 psi (51.7 MPa)
Tensile Elongation:	1.59%
Shear Strength (ASTM D732)	2,800 psi (19.3 MPa)
Shrinkage on Cure (ASTM D2566)	0.001
Thermal Compatibility (ASTM C884)	Pass
Heat Deflection Temperature (ASTM D648)	140°F (60°C)

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.

LIMITED WARRANTY

PSI warrants its products to be free of manufacturing defects and that they will meet PSI current published physical properties. PSI warrants that its products, when properly installed by a state licensed waterproofing contractor according to PSI guide specifications and product data sheets over a sound, properly prepared substrate, will not allow water migration for a period of 12 months. 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 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.