



POLY-TUFF SYSTEMS
INTERNATIONAL
HIGHWAY DIVISION

TuffPoxy™ 4

Bridge and Parking Deck Penetrating Sealer

1.01 DESCRIPTION

TuffPoxy™ 4 is a two-component 100% solids epoxy designed as a very low viscosity, high strength sealer for hairline cracks in concrete substrates. Please use the correct product grade that complies with VOC regulations as per federal, state, statutory bodies, county and city regulations/codes at the place of installation of product.

1.02 USES

- Restoration of older concrete pavement decks
- Repair of new concrete decks with curing cracks
- Concrete crack repair without injection equipment
- Protection of deck rebar from corrosion

1.03 FEATURES

- High Strength
- Chemical resistant bonding
- Extremely durable bonds
- Very low viscosity
- Fast setting
- Pre-measured packaging of components.
- Minimal shrinkage upon cure
- Substantial cost savings over new concrete

1.04 TECHNICAL DATA

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

1.05 COLOR

Clear

1.06 PACKAGING

4-gallon kits: 3 gallon (7.14 liters) container of Side A and 1 gallon (3.78 liters) container of Side B

1.07 COVERAGE

The coverage rate is 2/3 - 1 1/2 (0.27-0.61 liters/sqm) gallons/sqft or 75-150 sqft/gallon depending on substrate. All coverage rates are approximate. Coverage rates will vary with the texture and the porosity of the concrete.

1.08 PREPARATION

New Concrete- Surface should be well cured (28 day minimum) using water, wet burlap, polyethylene curing paper, or dissipating resin based

curing compound. Old Concrete- Remove any previously applied sealers, dust, dirt, tar, oil, etc. with pressure wash and PSI's **EnviroClean™**, Citrus Cleaner or use other appropriate measures to properly prepare the substrate. Membranes of any kind must be removed.

1.09 MIXING

Pre-mix each component. Mix 3 parts by volume of Side A Resin to 1 part Side B Hardner. Always add Side A to the Side B. Mix using either PSI's **Rapid Pail Mixer** or a low-speed (400-600 rpm) drill using the PSI's **Jiffy Paddle** utilizing the PSI's **1 Man Stand**. Mix until uniform in color. Only mix what can be applied within 25 minutes.

1.10 APPLICATION

Mix 3 part by volume of Side A Resin with 1 part of Side B Hardner as packaged by PSI. A mechanical agitator should be used, such as an electric drill with a mixing paddle attached. After mixing thoroughly for at least three minutes, the epoxy may then be applied immediately by pouring onto the concrete deck or substrate. The mixed epoxy should be allowed to pool over the visible cracks, and then spread progressively thinner over the entire surface to be sealed with a squeegee or stiff bristle push broom. Soon after applying the epoxy to the substrate (within 30 minutes) depending upon ambient temperature and tackiness, mechanically broadcast kiln dried, medium coarse sand evenly onto the wet epoxy surface at a rate of 20-40 pounds/100 sqft of sand (1-2 kg.sqm) of epoxy sealed substrate. This is to promote an anti-skid surface. It is imperative to apply this sand into the epoxy film before it cures, or the sand will not adhere to the epoxy and a dangerously slick road surface could result. The final cured surface appearance should be dull and not glossy. Application of the epoxy should be restricted to an ambient and surface temperature range of 50-85°F (10-29°F) range. Epoxy pot life decreases significantly as temperature increases. Therefore, working times for mixed epoxy are significantly shortened at elevated temperatures.

1.11 CURING/DRYING TIME

Minimum Closure Times :

Weather Average Temperature of Deck, Epoxy, and Aggregate Components in °F (°C):

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

NOTE: 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.

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 CLEAN UP

Tools and Equipment: Clean with Xylene or PSI's **GreenClean™**. Uncured material can be removed with PSI's **Solvent100™** or approved solvent. Cured material can only be removed mechanically. Dispose of in accordance with current applicable local, state and federal regulations. Cured Resins are Innocuous.

1.14 LIMITATIONS

- Minimum substrate and ambient temperature for application 50°F (10°C).
- Do not apply over wet, glistening surface.
- Material is a vapor barrier after cure.
- Do not apply to porous surfaces exhibiting moisture-vapor transmission during the application. Consult Technical Service.
- Minimum age of concrete prior to application is 21-28 days, depending on curing and drying conditions.
- Use oven-dried aggregate only.
- Do not thin with solvents.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

1.15 CAUTION

Not suitable for asphaltic surfaces. Do not use over a curing membrane. Do not apply if precipitation is expected within four hours. **TuffPoxy™**

4 is not formulated for below grade waterproofing. 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.

1:16 PHYSICALS	
Mixing ratio by volume (A:B)	3:1
Viscosity	100 centipoises max
Pot life (1 Lb mass @ 77°F [25°C])	50 minutes
Practical Field Pot Life (4 gals. @85°F [29°C])	15 min
Tack free time (77°F [25°C]) ASTM 01640)	6.5 hrs
Initial cure (thin film @ 77°F [25°C])	8 hours
Full cure	7 days
Compressive strength (DMS-6100)	9000 psi (62.10 MPa)
Concrete Wet Bond Strength	(DMS-6100)>400psi (2.76 MPa)
Coverage	75-150 sqft/gallon (1.85-3.68 sqm/l)
Water gain (ASTM D-570-57T)	0.2% max

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. With preapproval, 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.

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