



# E-TUFF® 7097

## Multi-Purpose, Low Modulus, Epoxy Adhesive and Binder

### 1.01 DESCRIPTION

**E-Tuff® 7097** is a two component, 1:1 ratio, 100% solids, low modulus, low viscosity, moisture tolerant, rapid setting, multi-purpose adhesive and epoxy binder. Formulated for use in bonding skid resistant materials to hardened concrete and as a binder in epoxy mortars. VOC compliant in all States and Provinces in North America.

**E-Tuff® 7097 is the epoxy binder for the following PSI System:**

**E-Tuff® 7097-DECO** Use with colored glass or colored mineral aggregates for bike lanes, bus lanes and walking lanes.

### 1.02 USES

Use as a neat epoxy binder adhesive to bond approved aggregates to cured asphalt or concrete pavements. Use as an above grade interior or exterior crack filler or surface sealer to prevent the intrusion of water and waterborne contaminants. All aggregates must comply with federal, state and provinces pavement and bridge specifications.

### 1.03 FEATURES

- Abrasion, Chemical and Impact Resistant
- Creates a Below Aggregate Protection Layer to Reduce Water and Water Borne Chemical Intrusion
- Excellent Adhesion
- High Strength, Low Viscosity and Low Modulus Epoxy Binder
- Mix Ratio 1:1 By Volume for Ease of Use
- Rapid Cure Return to Traffic Formula
- Use Neat Resin and Hardener or Aggregate Extended Mortar for Patching and Concrete Repair
- Use Neat Resin and Hardener to Mend Cracks, Broadcast Aggregate to Support Preservation and Friction (HFST) Application

\*Cold weather formulation available upon request.

### 1.04 TECHNICAL DATA

Meets ASTM C881, Type III, Grade 1, Class B & C and AASHTO M235, Type III, Grade 1, Class B & C

### 1.05 COLOR

Clear Light Amber.

ETUFF 7097 (d) available upon request. Part A ( Blue ) dye & Part B (Yellow) dye indicators.

### 1.06 PACKAGING

10-gallon kit: 5 gallon pail of Side-A (18.9 liters) and 5 gallon pail of Side B (18.9 liters)

100-gallon kit: 50 gallon drum of Side-A (189 liters) and 50 gallon tote of Side B (189 liters)

500-gallon kit: 250 gallon tote of Side-A (946 liters) and 250 gallon tote of Side B (946 liters)

### 1.07 ESTIMATED COVERAGE

#### Single and Multi-Layer Coverage

Course #1: Epoxy rate: 40 sqft/gallon (1 liter/sqm) Aggregate rate: 1-1.5 lb/sqft (4.88-7.32 kg/sqm).

Course #2: Epoxy rate: 20 sqft/gallon (2 liter/sqm) Aggregate rate: 1-1.5 lb/sqft (4.88-7.32 kg/sqm).

#### Epoxy Mortar Coverage

Epoxy Mortar: 2 gallon (7.6 liter) epoxy mixed with 10 gallon (37.8 liters) of washed and dried aggregate yields approximately 1.2 cuft.

### 1.08 SURFACE PREPARATION

Concrete: The pavement must be a minimum of 30 days old, sound and free of all contaminates, including oil, grease, dust, laitance and other bond breaking materials. Mechanically abrade the concrete surface by grinding, abrasive blasting or shot blasting to an ICRI Guideline No. 310.2R, CSP 3 - 5.

Concrete moisture levels are recommended less than 5%, per ASTM F2659 Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and Other Floor Slabs and Screeds Using a Non-Destructive Electronic Moisture Meter, such as TARMEX CME4 or TARMEX CMEX II, or similar devices.

Asphalt: Prepare asphalt pavement per Asphalt Institute's MS-16 Asphalt in Preservation and Maintenance, and MS-17 Asphalt Overlays for Highway and Street Rehabilitation.

Sweep and remove loose contaminants from the asphalt surfaces. Spray with a steady stream of water to dislodge and remove small embedded residue and blast with clean air to clear the surface of residue.

### 1.09 MIXING

Hand Mixing: Condition material for hand mixing to 65°F to 85°F (18°C to 29°C) for ease of mixing and optimum flow when using. Premix each side for thirty seconds, then place 1 part by volume Side A and 1 part by volume Side B into a clean pail and mix for three minutes at a low speed using a PSI Rapid Pail Mixer or a ½ hp heavy duty drill with a Jiffy type paddle utilizing the PSI 1 Man Stand.

**Automatic Mixing:** Condition material for automated mixing per the manufacturer's recommendation or 75°F (23.9°C). Automatic plural component mixing and dispensing equipment. Check to make sure that volume is dispensed at the correct ratio and that the material is thoroughly mixed, before putting the equipment into service. Follow the manufacturer's recommendations.

## APPLICATION

### 2.01 AUTOMATED APPLICATION

Surface and ambient temperature must be a minimum of 50°F (10°C). Utilize one of the following methods for the application of **E-Tuff® 7097** and aggregate wearing coarse. The automated installation can continuously heat, cool, mix, meter and apply the epoxy binder in continuous passes and layers.

### 2.02 MECHANICAL MIXING AND APPLICATION

**E-Tuff® 7097** resin and hardener is used as the epoxy binder for a truck mounted resin dispensing equipment onto the pavement section to be treated in varying widths at a uniform thickness. Operations shall proceed in such a manner that will not allow the material to separate in the mixing lines, cure, dry, or otherwise impair retention bonding of the surfacing aggregate. The mixed sides shall be applied mechanically onto the prepared pavement surface at a minimum rate of 3-4 gallons per 100 sqft (1.21-1.63 liter/sqm.) or 25-32 sqft/gallon for a one coat system. Immediately broadcast the surface aggregate onto the epoxy binder at a minimum rate of 1-1 ½ lbs/sqft (0.45-0.68 kg/sqft).

### 2.03 HAND MIXING AND APPLICATION

**E-Tuff® 7097** Sides-A and Side-B, shall be premixed and proportioned to the correct ratio, 1:1. Mix material using a low speed, high torque drill fitted with a Jiffy type paddle mixer or a helical paddle. This method shall be used where truck mounted application equipment is not available because of logistics or restrictions. The mixed sides shall be hand applied onto the prepared pavement surface at a coverage rate of 2 ½ gallons per 100 sqft (1 liter/sqm) or 40 sqft/gallon. Hand applied binder shall be uniformly spread onto the substrate surface by means of a 3/16" (4.8 mm) notched squeegee. Immediately, spread the surfacing aggregate onto the epoxy at a minimum rate of 10 lbs/sqyd. After the initial cure of the first course, remove the excess aggregate and apply coarse #2, spreading the neat **E-Tuff® 7097** at a coverage rate of 5 gallons per 100 sqft (2.0 liter/sqm) or 20 sqft/gallon and broadcast aggregate to rejection. After allowing the system to cure – 2.5 hours for coarse #1 and 4 hours for coarse #2 at 70°F (22°C) and after all the excessive aggregate has been removed, open to traffic.

MINIMUM CURING TIME FOR EPOXY BINDER AND AGGREGATE	
60°F (15.6°C)	6 Hours
65°F (18.3°C)	5 Hours
70°F (21.1°C)	4 Hours
75°F (23.9°C)	3 Hours
80°F (26.7°C)	2.5 Hours

PHYSICAL PROPERTIES AT 77°F ( 25°C) RESIN AND HARDENER	
Viscosity	1,700 cps
Gel Time (60 gr. Mass)	20 minutes
Tack Free Time	3-5 hours
Adhesion, ASTM D7234	300 psi (2 MPa)
Compression Strength, ASTM D695	5,000 psi (35 MPa)
Compressive Modulus, ASTM D695	110,000 psi (758 MPa)
Tensile Strength, ASTM D638	2,800 psi (19 MPa)
Tensile Elongation, ASTM D638	40%
Flexural Strength D790	3,000 psi (21 MPa)
Shrinkage on Cure, ASTM D2566	0.2%
Water Absorption (24 Hr.), ASTM D570	0.2%
Slant Shear (2 Day), ASTM C882	2,000 psi (14 MPa)
Slant Shear (7 Day), ASTM C882	2,800 psi (19 MPa)
Thermal Compatibility, ASTM C884	Pass
Chloride Ion Permeability, AASHTO T277	0.0 Coulomb

PHYSICAL PROPERTIES AT 77°F ( 25°C) RESIN AND HARDENER AND AGGREGATE	
Compressive Strength, ASTM C579	
2 Hours	1,500 psi (10 MPa)
24 Hours	5,000 psi (35 MPa)
7 Days	5,200 psi (36 MPa)
Tensile Strength, ASTM C307	2,900 psi (20 MPa)
Tensile Strength, ASTM C307	<1%

### 2.04 CURING

Cold Temperature Formula Available Upon Request

It is highly recommended that all sides be conditioned in advance of use to 75°F (26.8°C). This may take 48 hours. It is to the contractor's benefit to maintain the sides at elevated temperatures. Lower temperatures increase the binder's viscosity and increase curing time.

### 2.05 CLEAN UP

Clean tools before the epoxy binder sets up using acetone or PSI's EnviroClean™.

### 2.06 STORAGE AND SELF LIFE

The material should be stored between 40°F to 95°F (5°C to 35°C), store in dry environment and out of direct sunlight. The shelf life of properly stored and open containers is 24 months. Excessive temperature differential and/or high humidity can shorten the shelf-life.

### 2.07 LIMITATIONS

- Minimum substrate temperature is 50°F (10°C)
- Maximum substrate temperature for non-automated systems is 95°F (35°C)
- Do not thin with solvent. Solvent will prevent proper cure



- Do not use wet aggregate. Aggregate must be clean, dry and bagged
- Do not place on magnesium phosphate cement concrete

## 2.08 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.
- SDS: Obtain, read and understand the Safety Data Sheet before use of this or any other Poly-Tuff System International products.

## 2.09 CAUTION

- Side A – Irritant
- Side B – Corrosive
- Product is a strong sensitizer
- Use with adequate ventilation
- Wear protective clothing, gloves and appropriate eye protection (safety glasses, goggles or face shield).
- Do not take internally

**READ SDS PRIOR TO USING PRODUCT. FOR PROFESSIONAL USE ONLY. KEEP OUT OF REACH OF CHILDREN. MADE IN THE USA.**

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 and chemical properties. 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 user's 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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**Poly-Tuff Systems International Corp.**

8550 West Desert Inn Road | Suite 102-451

Las Vegas, NV 89117 | T: (866) 977-8833 | F: (800) 804-0182