



P-TUFF® U55

Rapid Curing, 100% Solids, Flexible, Aromatic, Seamless, Two Component Spray Polyurea Coating System

1.01 DESCRIPTION

P-Tuff® U55 is a fast-setting, seamless and joint-free coating system made from a rapid-curing, 100% solids, flexible, aromatic, two-component spray Polyurea which can be applied to suitably prepared concrete and metal surfaces. It's extremely fast gel time makes it suitable for applications down to -20°F (-29°C). It may be applied in single or multiple applications without appreciable sagging and is relatively insensitive to moisture and temperature allowing application in most temperatures. Be sure to use the right 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 FEATURES

- Zero VOC (100% Solids)
- Excellent Thermal Stability
- No Toxic Vapors
- Low Temperature Flexibility
- Good Chemical Resistance
- Interior or Exterior Applications
- Coats carbon or mild steel metals without primer
- Installed with or without reinforcement in transitional areas
- Odorless
- Seamless
- Non-Reactive
- Meets USDA Criteria

1.03 TYPICAL USES

- Airports
- Refineries
- Fertilizer Plants
- Mining Operations
- Food Processing Plants
- Marine Environments
- Secondary Containment
- Water & Waste Water Treatment
- Manufacturing Facilities
- Power Plants
- Structural Steel
- Warehouse Floors
- Cold Storage Facilities
- Landfill Containment
- Paper & Pulp Mills
- Parking Garage Decks
- Walkways & Balconies
- Industrial Facilities

1.04 COLORS

Neutral. Custom colors are available upon request. Minimum quantity applies, contact Poly-Tuff Systems International (PSI).

Due to its aromatic P-Tuff® U55 will tend to yellow or darken in color and will become flat after exposure to UV light. P-Tuff® U55 may be top coated with an aliphatic polyurethane/polyurea coating for a color- fast finish.

1.05 PACKAGING

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

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

TECHNICAL DATA

(Based on draw down film).

Mix Ratio by Volume	1A : 1B
Pot Life at 150°F (66.5°C)	4 - 8 sec.
Tack Free Time (thickness & substrate temperature dependent)	45 - 60 sec.
Recoat Time	0 - 6 hours
Viscosity at 150-160°F (66.5-71°C)	
Part-A	50 ± 20 cps
Part-B	50 ± 20 cps
Density (Side A & B Combined)	8.81 lbs/gal
Flash Point	> 200°F (93.3°C)
Hardness, ASTM D-2240	50 ± 5 D
Tensile Strength, ASTM D-412*	3500 ± 200 psi 24.1 ± 1.4 MPa
Elongation, ASTM D-412*	450 ± 50%
Tear Resistance, ASTM D-412*	450 ± 50 pli (78.8 ± 8.8 kNm)
Service Temperature - Dry	-40°F to 250°F (-40 to 121.1°C)
Service Temperature - Wet	40°F to 120°F (4.4 to 48.9°C)
Water Vapor Permeability, ASTM E-96	0.361 perm-inch
Volatile Organic Compounds, (Part-A & B combined)	0 lbs/gal (0 gm/liter)
Recommended Applied Thickness	> 2 mm
Return to Service: Foot Traffic	1 - 4 hours
Return to Service: Full Service	> 24 hours
Taber Abrasion Resistance, ASTM D4060 (CS17 wheel, 1000 cycles, 1 kg load) (maximum)	6 mg loss
Water Absorption, ASTM D471 (maximum 23°C, 24 hours)	< 0.5%
Crack Bridging, ASTM C836 (-25°C, 1.6mm crack, 25 cycles)	Pass
Impact Resistance @ 25°C (ASTM G14)	> 200 lbs
Pull-Off Strength (minimum), ASTM D4541:	
Inter-Coat Adhesion (within recoat time)	Excellent
Concrete (Shot blasted profile), substrate failure occurred	>500 psi (3.4 MPa)
Concrete (Primed), substrate failure occurred	>500 psi (3.4 MPa)
Steel (90 um blast profile)	>900 psi (6.2 MPa)
Lineal Shrinkage	1 - 2%
Flexibility (1/8" 3mm Mendrel Bend Test), ASTM D1737	Pass
Resistance to Weathering, ASTM G-23 (Type QUV Weatherometer-3000 hrs exposure)	
No cracking or blistering. Color change, gloss reduction & chalking are noted.	

(*These physical properties from sample sprayed with Graco Foam Cat 200 @ 2000 psi minimum, with Gusmer GX7-400 mechanical purge gun @ 150-160°F. Different machine and parameter will change these properties. User should perform their own independent testing as properties are approximate.)

1.06 COVERAGE

P-Tuff® U55 may be applied at any rate to achieve desired thickness. Theoretical coverage for 1 mil thickness is one gallon per 1600 sqft (149 sqm).

1.07 SURFACE PREPARATION

In general, coating performance and adhesion are directly proportional to surface preparation. Most failures in the performance of surface coatings can be attributed to poor surface preparation. Polyurea coatings rely on the structural strength of the substrate to which they are applied. All surfaces must be free of dust, dirt, oil, grease, rust, corrosion and other contaminants. When coating substrates previously used, it is important to consider the possibility of substrate absorption, which may affect the adhesion of the coating system, regardless of the surface preparation. PSI recognizes the potential for unique substrates from one project to another. The following information is for general reference, and for project-specific questions, contact PSI representative.

New and Old Concrete:

Refer to SSPC-SP13/NACE 6, or ICRI 03732: CSP 3-5. New concrete must be cured for 28 days prior to product application. Surface must be clean, dry, sound and offer sufficient profile for product adhesion. Remove all dust, dirt, oil, form release agents, curing compounds, salts, efflorescence, laitance and other foreign matter by shotblasting and/or suitable chemical means, in accordance with local chemical regulations. Rinse thoroughly, to achieve a pH between 8.0 and 11.0. Allow to dry completely. If old concrete has a surface that has deteriorated to an unacceptably rough surface, B-Tuff® 306 or a mixture of Enviro-Grip™ #1 and sand should be used as a repair agent for cracks, spalls, bug holes and voids. Upon full cure of the repair agent, prime the entire surface intended for coating. Concrete Surface Preparation Reference:

ASTM D4258 – Standard practice for cleaning concrete
ASTM D4259 – Standard practice for abrading concrete
ASTM D4260 – Standard practice for etching concrete
ASTM F1869 – Standard test method for measuring
moisture vapor emission rate of concrete
ICRI 03732 – Concrete surface preparation

Wood:

All wood should be clean, dry and free of any knots, splinters, oil, grease or other contaminants. Splintered or rough areas should be sanded. Knots should be repaired using B-Tuff® 306 with sand. Upon full cure of the repair agent, prime the entire surface intended for coating.

Steel (Atmospheric and Immersion Exposure):

Remove all oil, grease, weld spatters and round off any sharp edges from surface. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Optimum surface profile is 2-3 mils. Prime and shoot P-Tuff U55® on to any bare metal the same day as it is cleaned to minimize any potential flash rusting.

Aluminum:

Aluminum should be blasted with aluminum oxide or sand, and not with steel or metal grit. Excessive blasting may result in a warped or deformed surface. After blasting, wash aluminum with a commercially available aluminum cleaner. Allow to dry, then prime.

Brass and Copper:

Brass and copper should be blasted with sand, and not with steel or metal grit. Remove all dust and grease prior to applying primer.

Galvanized Surfaces:

Clean and degrease any contaminated surfaces before priming. Do not blast galvanized surfaces with an abrasive grit. An adhesion test is recommended prior to starting the project.

Fiberglass Reinforced Plastic:

The gel coat should be lightly blasted or sanded with 80 grit sandpaper and cleaned.

Plastic Foams:

Enhanced adhesion is obtained when the foam is mechanically abraded. When coating polystyrene, do not use a solvent-based primer.

Textiles, Canvas, Fabrics:

Adhesion to most fabrics, geothermal membranes and textiles does not require a primer.

Stainless Steel:

Stainless steel may be grit blasted and degreased before priming. Some stainless steel alloys are so inert that it is not possible to achieve a satisfactory bond. An adhesion test is recommended prior to starting the project.

New and Old Cast Iron:

Blast with a steel grit and degrease before priming. Old cast iron is difficult to prepare for a satisfactory bond. It can absorb oil and water soluble contaminants that will keep returning to the surface after the coating system has been applied and affect the coating system adhesion. An adhesion test is recommended prior to starting the project.

**ALL OTHER SURFACES:**

An adhesion test is recommended prior to starting the project.

1.08 PRIMING

Prime surface as required with Enviro-Grip™ EP#2(SC), #1 or PUR#555 at a rate of 1 gallon/300 sqft or 300 sqft/gallon (0.14 liters/m²). Apply using a brush or phenolic core roller. This will result in 3 dry mils (76 microns) of coating. Existing urethane coated surfaces should be primed with Enviro-Grip™ PUR#555.

Rough and pinholed concrete surfaces may require more primer. Discovery of these issues is generally revealed in the mock-up. See the Tech-Note Section of the Poly-Tuff website. Do not allow primer to puddle, dry roll excess primer with a dry nap roller to pick up excess primer in puddles and overlaps.

1.09 MIXING

P-Tuff® U55 may not be diluted under any circumstances. Use appropriate solvent for solvent purge line and flushing of equipment and if spraying stops for periods exceeding the pot life of the material. Thoroughly mix P-Tuff® U55 Side-B Base material with air driven power equipment until a homogeneous mixture and color is obtained.

1.10 JOINTS, CRACKS, AND FLASHING

Apply U-55 over all primed joints and cracks. Bridge the joints and cracks with 4" (10.16 cm) Super Seal Polyester Tape. Do not prime over Super Seal Tape. Over reinforcement tape apply a thin coat of U-55 and smooth onto adjacent surface. Optionally in lieu of 3 coursing laps and joints, Super Seal Tape may be used over all cleaned laps, joints and cracks and then coated. Fully reinforced systems do not require the use of Super Seal Tape over joints and cracks.

Wall to deck perimeter flashings shall be either a minimum of 24 gauge galvanize steel flashing or 40-60 mil EPDM Sheet Rubber. Flashing shall turn up the wall a minimum of 6" (15.24 cm) and turn out 4" (10.16 cm) onto the deck surface. Metal Flashings require Enviro-Grip™ EP#2. EPDM must be primed with Enviro-Grip™ #1, #2, or PUR#555. The use of Flexi-Flashing™ may often replace corrosive metal flashings.

APPLICATION**2.01 APPLICATION BASICS**

P-Tuff® U55 should be applied using a 1:1 plural component equipment capable of developing a minimum of 2000 psi and heating the individual component to 170°F (77°C) using an impingement gun. Hose temperature should be maintained at 160-170°F (71-77°C). The P-Tuff® U55 material should be preheated to 75- 85°F (24-30°C).

P-Tuff® U55 should be sprayed in multi directional passes for a proper uniform thickness.

2.02 EQUIPMENT CLEANUP

Equipment should be cleaned with an environmentally safe, urethane-grade solvent (alcohol free) as permitted under local regulations immediately after use.

2.03 STORAGE

P-Tuff® U55 has a shelf life of one (1) year from date of manufacture when stored indoors in original, factory- sealed containers.

Side-A and Side-B drums must be stored above 60°F (15°C).

Avoid freezing temperatures. Store drums on wooden pallets to avoid direct contact with the ground. If stored for a long period of time, rotate Side-A and Side-B drums regularly.

2.04 LIMITATIONS

- Surfaces must be dry, clean and free of foreign matter.
- Containers that have been opened must be used as soon as possible.
- Do not open until ready to use.
- Side-A and Side-B containers should be fitted with a desiccant cartridge on the pail so that only dry air is sucked in a pail while withdrawing product.

WARNING: This product contains Isocyanates and curatives.

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.