



TECHNICAL BULLETIN

TUFFLEX SOLVENT FREE “TUFF” Resin Binder Concentrate Water Cured Urethane (WCU) Base Membrane

PRODUCT DESCRIPTION: TUFFLEX Solvent Free “TUFF” is a liquid applied Water Cured Urethane (WCU) elastomeric membrane that is used in many of the TUFFLEX Polymers (TUFFLEX) High Performance Coating Systems.

BASIC USES: When properly applied, this material will provide a seamless and flexible membrane that protects against water damage. It is commonly used in the TUFFLEX Specifications for protecting concrete and plywood pedestrian walking decks—including hard usage ski resort sun decks, vehicle parking decks, mechanical equipment room waterproofing and as an under tile waterproofing membrane. It is also used to provide seamless and cushioned membranes and mats over porous concrete for exterior recreational surfacing. This membrane material is also widely used to provide seamless and flexible waterproofing and rust-resisting decking systems on ships. TUFFLEX Solvent Free and Low VOC Systems allow for ease of application in interior areas as well as exterior areas. Refer to the TUFFLEX Specifications for further information and ideas.

SURFACE TEXTURES: Depending on the intended usage, TUFFLEX Membranes may be used with various surface textures. Surface textures can range from very rough for maximum slip resistance to very smooth for ease of cleaning. Refer to the TUFFLEX Advisory “SURFACE TEXTURES ON TUFFLEX MEMBRANES” for further information and ideas.

PRODUCT ECONOMY & VERSATILITY: TUFFLEX “TUFF” Resin Binder Concentrate is just that—a concentrate! When you add the 25% catalyzing water you obtain the final product. Filler and extender materials, such as sand or rubber, may be added for sloping, filling or coving purposes.

TYPICAL FEATURES & USES

- * Non-Gassing
- * Seamless Membrane
- * Water Catalyzed
- * Parking Decks
- * Pedestrian Decks
- * Elastomeric Roofing
- * Ship Decks
- * Fast Curing
- * Applied at Almost Any Thickness
- * Concrete Substrates
- * Plywood Substrates
- * Masonry
- * Metal
- * Under Tile

COLOR

White

PACKAGING

5 gallon pail with one vial of optional Green Catalyst

SUBSTRATES

See general application guidelines.

JOINTS, CRACKS AND FLASHINGS

See general application guidelines.

SLOPING AND CONCRETE REPAIRS

Prior to the membrane application concrete repairs can be made with a sand or rubber slurry mixture consisting of 1 volume of properly mixed (with water) TUFFLEX “TUFF” (see mixing instructions below) to 1 volume clean graded sand or ½ volume rubber granules. By use of the Green Catalyst, light foot traffic is allowed over repaired areas in as little as 2 – 4 hours depending on weather conditions.

TUFFLEX “TUFF” can be thickened into a paste consistency (after addition of water) by adding up to 15% by volume of fine rubber powder.

COVERAGE RATE

Five (5) gallons of TUFFLEX “TUFF” when properly mixed with 1-1/4 gallons of water will provide 36-40 dry mils of coverage when applied over a 200 square feet area.

Porous Plywood or uneven surfaces often require the addition of 60 mesh or 30 mesh bonding aggregate broadcast into the TUFF-POXY Primer. These conditions may also require additional TUFFLEX “TUFF” material to achieve the same dry film mil thickness.

MIXING

Before application, briefly pre-mix TUFFLEX “TUFF” Resin Binder using a mechanical mixer (Jiffy Mixer) at slow speeds. Add the optional TUFFLEX Green Resin Binder Catalyst (for a rapid cure) and then add the water and mix thoroughly until a homogenous mixture is obtained. Use care not to allow the entrapment of air into the mixture.

SURFACE PREPARATION

All surfaces to be coated with TUFFLEX “TUFF” must be free of any and all contamination including paint and concrete, and should always be primed. New traffic bearing concrete surfaces are often shotblasted, high pressured water blasted or etched with a 15% to 20% solution of muriatic acid to remove laitance and impurities. (After the acid has ceased boiling, immediately neutralize with a diluted solution of ammonia and water. High pressure wash with water in order to remove all cleaning chemical contaminants). New concrete should be cured for a minimum of 28 days and should have a minimum of 3000 psi compressive strength. The only permissible curing compounds (if used) are of the pure sodium silicate type. The use of other curing agents will always require job site pre-application testing and possibly removal by grinding.

APPLICATION CONDITIONS

All application conditions require priming. Use TUFF-POXY Primer # 1 (solvent free) or TUFF-POXY Primer # 2 (standard VOC) or Primer #3 (low VOC). Many situations will require the use of 30 mesh or 60 mesh bonding aggregate. Allow the primer to properly cure until firm and only tacky prior to application of the TUFFLEX “TUFF” membrane system. Apply the primers at the rate of 250-350 square feet per mixed gallon.

Thorough mixing of the base component and the water activated component is critical to a successful application and should be performed with a slow speed power mixer such as a model KOL mixer with a “jiffy blade”.

Mix TUFFLEX “TUFF” with water (this means water must be added) at a ratio of ½ gallon of water to 2 gallons of TUFFLEX “TUFF” Resin Binder. This will yield 2 ½ gallons of liquid membrane. The mixing ratio is 4 PARTS TUFFLEX “TUFF” RESIN BINDER TO 1 PART OF WATER (4:1).

APPLICATION

All concrete, metal and old plywood surfaces should be primed the same day as the TUFFLEX “TUFF” base membrane is installed. If there will be a 24 hour to 36 hour delay before the base membrane installation the primer must receive a full broadcast of bonding aggregate. Apply the properly mixed and catalyzed TUFFLEX “TUFF” base membrane evenly over the entire deck. For best results use a squeegee or a notched trowel followed by backrolling. Application should proceed rapidly and be continuous across the entire deck to ensure a smooth and even coat.

An aggregate of 14-30 mesh rubber granules may be broadcast into the TUFFLEX “TUFF” liquid membrane at a rate of 10 lbs. per 100 square feet

or to refusal. The amount of rubber used will vary. When a rigid texture is desired, 20-40 mesh flint shot silica aggregate may be broadcast to refusal into a 2nd application or Aggregate Binding Coat of TUFFLEX “TUFF” or into the first layer of COLORCOAT AL-Ester Top Coat.

CURING

Allow each layer of properly mixed and catalyzed membrane to cure a minimum of 3-8 hours and until firm before proceeding with subsequent coats.

EQUIPMENT CLEANUP

Equipment should be cleaned with an environmentally safe solvent.

STORAGE

TUFFLEX “TUFF” has a shelf life of six (6) months from date of manufacture in original, factory sealed plastic containers and nine (9) months in original, factory sealed metal containers when stored indoors at 77° F.

LIMITATIONS

Using a clear topcoat over this membrane may result in a cloudy, milky finish unless the TUFFLEX “TUFF” is sealed initially with an aggregate binding coat of pigmented COLORCOAT AL-ESTER or ELASTA-TUFF 6000-AL. TUFFLEX “TUFF” is not UV stable and must have a topcoat applied.

Surfaces to be coated must be dry, clean and free of foreign matter. Do not apply if surface or air temperatures are below 50°F or above 90°F.

Cured surface may be slippery when wet. Therefore proper surface texturing and traffic enhancement is important.

TUFFLEX “TUFF” requires proper flashing and flashing reinforcement, proper priming and proper perimeter detailing work.

TUFFLEX “TUFF” is a fast curing material and must be applied immediately after thoroughly mixing with water. Containers that have been opened should be used as soon as possible.

PRECAUTIONS

This product contains aromatic isocyanates and petroleum based low viscosity plasticizers. Read the container-warning labels carefully. Exposure to isocyanates and petroleum ingredients may cause allergic skin and respiratory reaction. Personnel applying isocyanate prepolymers should wear protective, clothing, goggles and gloves and should use only with adequate ventilation and respiratory protective gear.

Avoid contact of material with skin or eyes and avoid breathing vapors. Mix and apply only in well-ventilated areas. Read the appropriate Safety Data Sheet (SDS) prior to handling the epoxy primers or TUFFLEX membranes. THIS PRODUCT IS FOR PROFESSIONAL USE ONLY.

LIMITED WARRANTY

TUFFLEX Polymers (TUFFLEX) warrants this product to be free of defects in workmanship and materials only at the time of shipment from our factory. If any TUFFLEX materials prove to contain manufacturing defects that substantially affect their performance. TUFFLEX will, at its option, replace the materials or refund its purchase price.

The limited warranty is the only warranty extended by TUFFLEX with respect to its materials. There are no other warranties, including the implied warranties of merchantability and / or fitness for a particular purpose. TUFFLEX specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever.

The dollar value of TUFFLEX’S liability and buyer’s remedy under this limited warranty shall not exceed the purchase price of the TUFFLEX material in question.

TUFFLEX SOLVENT FREE “TUFF”

PROPERTY	TYPICAL VALUE	ASTM TEST METHOD
Color	White	
Weight per Gallon	9.3 lbs	
Solids Content	Solvent Free	
VOC Content	50 gm/liter	Calculated
Coverage: sq. ft per mixed gal @ 60 dry mils thickness	25 (4 gal./sq.)	Calculated
Hardness, Shore A	60 ± 5	D-2240
Tensile Strength	1200 ± 150psi	D-412
Ultimate Elongation, %	600 ± 100%	D-412
Chemical Resistance (Commonly encountered acids, salts, and oils)	Good Resistance	D-3476
Pot Life, @ 77°F	20-25 minutes	-----
Gel Time, @ 77°F	30-35 minutes	-----
Low Temperature Brittleness @ 0°F	Passes	D-746
Flash Point, Base Material	Above 200°F	D-3278