

# GreenTuff AL-Aliphatic Pure Polyurea



## 1. Description

GreenTuff AL Aliphatic Polyurea is a 100% solid, fast curing, 2 components, UV resistant, aliphatic pure polyurea system. Its formulation is designed for maintaining high color stability and preventing discoloration where surfaces are exposed to sunlight continuously. It can be directly applied on most surfaces or used as a top layer on epoxy, polyurethane and polyurea. It forms a coating material with high tensile strength and abrasion resistance after fully cured. It can be applied on concrete, metal, wood, ceramic and PU foam for protection and coating purposes while forming strong films in wide variety of thicknesses. The material must be applied utilizing high pressure, heated plural component spray proportioning equipment.

## 2. Properties & Features

- Excellent UV light resistance
- 100% color stability
- Fast reactivity and fast return to service time
- 100% solid, VOC free, no odor
- Very good tensile and structural strength
- Anticorrosive
- High Hydrolysis resistance
- Excellent temperature stability
- Seamless and jointless coating with high water resistance
- Excellent adhesion on concrete, steel, aluminum, plastics, wood, etc.
- Temperature and humidity insensitive
- Variable application thickness is possible
- Broad color spectrum

## 3. Fields of Applications

- Exterior coatings where color stability is required
- Swimming pools and water parks
- Roofs, garages and parking lots
- Airports, shipyards and marina
- Wind energy plants
- Amusement parks and playgrounds
- Decorative designs
- Furniture Industry

## 4. Product Information

Packaging	55 gal barrel (A – Iso Side), 55 gal barrel (B - Amine Side)
DOT Classification Class	Roof Coating, Not Regulated. NFMC #170080 55

Property	Test Method	Data
Tensile Strength	ASTM D638	± 2,000 psi (26 MPa)
Elongation (break)	ASTM D638	± 350%
Density		8.34 lbs./gal
Compressive Strength	ASTM D1675	1,000 PSI @ 28 Days
Gel time		15-20 min
Solids Content by Volume	ASTM D2697	100%
Tack Free Time	Temp. & Humidity Dependent	45-60 sec.
VOC	EPA Method 24	0 grams/L
Durometer Hardness	ASTM D2240	Shore D 10-15
Pull off strength	ASTM d4541	Concrete >=4000 Steel >=8500
Recoat Time		0 – 12 hours
Shelf Life		(UNOPENED CONTAINERS): 6 months when stored between 35°F and 75°F (1.6°C and 24°C)

## 5. Directions for Use

### A. Application Conditions

The surface must be strong and of sufficient strength. Application should not be made on screed concrete which has low quality. The compressive strength for surface must be minimum 3600 psi, the lowest adhesion strength should be 200 Psi.

Before application on fresh concrete the concrete should be allowed to dry for at least 28 days. The surface and ambient temperature should be at least 40 °F. Relative air humidity should be less than 85%.

The maximum amount of surface moisture should be 4% for the surfaces applied with polyurethane primer, maximum 6% for surfaces applied with moisture tolerant epoxy primer, maximum 7% for surfaces applied water based epoxy primer.

Attention should be paid to condensation on the surface. Application should not be made early in the morning. The surface temperature should be at least 5°F (3°C) higher than the dew point.

Do not apply on frozen, melting surfaces or on surfaces where rain is expected within 6-8 hours.

The above conditions apply to both primer and polyurea application

TECHNICAL DATA SHEET

**B. Surface Preparation**

The application surface should be clean and dry. The elements that prevent adhesion should be cleaned from the surface. Do not wash to clean the surface. If necessary, the surface should be wiped off with suitable wiping machines in order to remove the weak concrete on the surface for to open the eyelets and openings. The glazed top layer of ceramic surfaces should be roughened. Dust happened after wiping should be removed from the surface by brush or vacuum cleaners. Dilatations on the surface should be insulated with the appropriate polyurethane based filler material and dilatation tape. Any fractures, gaps and segregations on the surface must be repaired with suitable epoxy mortar or cement based repair mortars.

Corner chamfers should be supported with appropriate repair mortar or chamfer tape. The large screed concrete surfaces should be cut. The inside of the joints should be filled with polyurethane or polyurea based sealant. Sanding and polishing should be done according to the standards for corrosive areas in metal surface coatings. The joints on the cleaned metal surface should be covered with polyurethane based sealant , flexible tape or steel paste. As a result of these processes, dust and debris on the surface should be removed from the surface for the last time.

**C. Primer Application**

If the surface moisture is less than 4% on absorbent surfaces (concrete, wood etc.), it is recommended to use a low viscosity primer for the first coat primer application. This application will reduce the amount of epoxy primer to be applied on the second layer priming and the number of pinholes on the surface in polyurea application. After the impregnation primer application, one can choose between the primer as specified according to surface moisture. If the surface moisture is above 4%, a moisture tolerant primer should be used instead of first layer impregnation primer. To obtain a homogeneous primer mixture, the primer should be mixed with an electric mixer or other suitable equipment for 3-4 minutes, low speed (~ 300 - 400 rpm) . Do not mix at high speed for a long time to prevent air bubbles. The prepared primer mixture is applied to the surface by brush, roller or airless spraying machines. When the primer is still wet, it is recommended to spray 0.3-0.7 mm of silica sand on the surface to increase the adhesion of the polyurea to the surface. Before applying GreenTuff AL, make sure that the primed surface is sufficiently dry. The primed surface should not be too wet or completely dry. It is sufficient to leave a feeling of adhesion in your hand. Foreign objects adhering to the primer surface and quartz sand, which is highly sprinkled, should be cleaned by brush or vacuum before application.

**D. Polyurea Application**

**Preparation of Components:**

Before starting the application, the component B (amine resin) must be mixed in the barrel for at least 30 minutes until a homogenous color is obtained. The mixing process must continue during application. It is important that the temperature of components A and B be in the range of 70- 80 °F before application. The components should not be diluted in any way.

**Spray Machine Settings:**

Process Properties	Unit	Isocyanate Prepolymer (A)	Amine Resin (B)
Mix Ratio	By volume	100	100
	By weight	105	100
Process Temperature	°F	160-165	160-165
Process Pressure	psi	2000-2500	2000-2500

The polyurea is applied to floors with a spraying machine operating at high pressure and temperature. Machine settings must be checked continuously during application. After all preparations are finished, the polyurea is applied by spraying on the surface with a minimum thickness of 80 mils.

**6. Consumption**

Polyurea could be applied at any rate to achieve desired thickness. Theoretical coverage is 40 ft<sup>2</sup>/gal for 40 mils thickness \* Consumption in the table is theoretical. Consumption may vary according to surface permeability, weather conditions, and the technique of application.

**7. Cleaning**

Clean all tools and application equipment with suitable cleaner solvent immediately after use. Hardened / cured material can only be cleaned by mechanical methods.