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# POLYMER NATION CHEMICAL COMPANY, LLC

*Setting the Standard*



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## TECHNICAL DATA SHEET: U-91 FLEXIBLE ALIPHATIC URETHANE

### Product Overview

U-91 combines our robust, proprietary polyol resin blend with our flexible aliphatic hardener to create a flexible, urethane with unique performance characteristics. U-91 is a 100% solids, low odor, low viscosity urethane that provides amazing flexibility, toughness and UV resistance.

### Uses and Benefits

U-91 is primarily used as a clear groutcoat over EPDM filled systems, due to its unsurpassed UV stability, flexibility and abrasion resistance. It can also be used as a component in flexible wall systems and padding. It adheres well to many substrates including concrete, gypsum, cement board, metals and fiberglass.

Suitable **topcoats** for U-91 are as follows: F-series polyaspartics, U-51 MCU, U-21 2K WB urethane, or SP-series polyaspartics.

### Limitations

U-91 is designed to be applied between 8-16 mils (100-200 sq ft/gal) as a floor topcoat and 5-6 (260-300 sq ft/gal) as a wall top coat. *U-91 should **not** be applied as a topcoat where there is vehicular wheel traffic or parked cars.* Ideal application temperatures to be between 60-90°F. Cooler temperatures will increase cure times. Warmer temperatures will decrease working and cure times. Verify that substrate temperature is above 5 degrees of dewpoint during application and cure of material to avoid any potential condensation.

### Surface Preparation

The preparation method for each project is determined by a full understanding of the substrate to be coated, the chemistry of the coating system being used, the coating system thickness, and numerous other factors. The coating installer should fully read and understand ICRI Guideline NO. 310.2R-2013 and OSHA 29 CFR 1926.1153 before starting preparatory work. The aim, of preparing a substrate for coating applications, is to roughen the surface, remove weak layers, contaminants, dirt, debris and present a solid, clean, dry substrate for the primer. If unsure as to the level of preparation needed contact Polymer Nation at [Lab@polymerNation.com](mailto:Lab@polymerNation.com).

### Mixing

It is always recommended to mix the entire kit, whenever possible, to avoid off-ratio mixtures. Mix ratio is 0.8 parts of U-91 Part A to 1 part U-91 Part B. Combine all of part A and B into a single container, large enough to accept the entire kit. Mix using a 350 RPM mixer using an appropriate mixing blade for 1 – 2 minutes making sure to not introduce excessive air into the material.

### Application

Pour ribbon of mixed material onto the floor and spread using a flat blade or notched squeegee. Back roll material immediately using a 3/8" nap roller cover to maintain an even

mil thickness of material while maintaining a wet edge. Pour next ribbon on top of wet material and repeat the process. Recoat within 24 hours. Clean tools with a solvent similar to Xylene or Acetone.

### Technical Data

The data below was gathered at temperatures of 72-75°F and 30-50% RH

Packaging	3 Gallon kits (A – 1.32 gal B – 1.68 gal)
Mix Ratio by Volume	0.8:1 (A:B)
Mixed Viscosity	450-650 cP 25°C/77°F
Gel Time	10-12 minutes
Dry to Touch	4-6 hours
Through Dry	8-12 hours
Dry to Light Use	16-24 hours
Full Cure	7 days
Pendulum Hardness (König)	12 @ 24 hours
Pendulum Hardness (König)	45 @ 7 days
Gloss @ 60 Degree Angle	85-95
VOC's of Mixed Material	<50 g/l EPA Method 24
Color Scale	N/A
Solids by Volume Mixed	100%
Application in Mils	5-16 (100 – 300 sq. ft./gal.)
Available Colors	Clear and Color Packs

## PHYSICAL PROPERTIES U-91 FLEXIBLE ALIPHATIC URETHANE

Description	Standard	Results
Tensile Strength	ASTM C307	3,270 psi
Moisture Absorption	ASTM C413	<.2 weight increase
Coefficient of Thermal Lineal Expansion	ASTM C531	15-17 x 10-6 27-30 x 10-6
Compressive Strength	ASTM C579	N/A
Modulus of Elasticity	ASTM C580	N/A
Flexural Strength	ASTM C580	5,150 psi
Water Vapor Transmission	ASTM D1653	See ASTM D3010
Impact Resistance	ASTM D2794	>160 inch pounds
Independent Certificate from third party testing agency	ASTM D3010	N/A
Adhesion	ASTM D3359	5A
Abrasion Resistance CS17 1000 g 1000cycles in g Loss	ASTM D4060	0.024g Loss (when higher abrasion resistance is required the addition of PC 1336 to the coating should be included)
Adhesion to Steel	ASTM D4541	N/A
Hiding Power	ASTM D5150	2-5/175 When pigmented
Flammability When Adhered to Concrete	ASTM D635	Self-Extinguishing
Adhesion to Concrete	ASTM D7234	>450 Substrate failure
Coefficient of Friction Dry Ave. three tests	NFSI B101.0	0.75
Coefficient of Friction Wet Ave. three tests	NFSI B101.1	0.7
Accelerated Weathering Testing	ASTM G154	Non-yellowing

\* Dispose of material, containers, solvents, etc., per Federal, State and local guideline, rules and laws.

\* Store material between 60-80 degrees F in a protected dry location.

Test data has been gathered from testing conducted by independent, internal and third party testing. The best way to compare coating performance is by head-to-head independent testing as this removes the numerous variables found between testing standards, equipment and testing agencies.

The information here is general information to help our customers determine whether our products suit their specific applications. Our products are intended for sale to commercial and industrial customers. **We require that customers inspect and test our products before use to satisfy themselves as to the content and suitability for the applications they intend to use our products.** Nothing herein shall constitute any warranty expressed or implied, including any warranty of merchantability or fitness for a particular purpose, nor is any protection from any law or patent to be inferred. The exclusive remedy for all proven claims is the replacement of our materials, and we shall not be liable for incidental or consequential damages. Polymer Nation Chemical Company LLC, 405 Oakwood Ave. Waukegan, IL 60085. All rights reserved.