Polymer Nation Chemical Company, LLC
405 Oakwood Ave, Waukegan, IL 60085 | (847) 774-5038
polymernation.com | sales@polymernation.com

URETHANES

U-51 Gloss

TECHNICAL DATA SHEET

COMPONENTS	SOLIDS	VOC	MIX RATIO
1	>98%	<50 g/l	See Accelerator section below

DESCRIPTION

U-51 is a non-yellowing, single-component, aliphatic moisture-cure urethane (MCU) coating with excellent wear, stain resistance, and adhesion properties. When used as a topcoat over conventional coatings, U-51 provides excellent chemical resistance and dramatically improved abrasion resistance. U-51 is available in a gloss finish.

RECOMMENDED USES

U-51 is primarily used as a clear topcoat due to its outstanding UV, stain, mar, and abrasion resistance. It can be applied to floors and adheres well to many substrates with a surface contact angle of 50 or lower, including epoxy, concrete, gypsum, cement board, metals, vinyl, PVC, and fiberglass. It can also be applied directly to concrete as a sealer and topcoat.

LIMITATIONS

U-51 is designed to be applied at 3-4 mils as a topcoat on floors. It should be installed with an option of AO or Polycarb Aggregate to aid in application and provide anti-slip. Exceeding 5 mils or allowing puddling may cause foaming and adversely affect the cure and finish. Ideal application temperatures are between 60-90°F. Cooler temperatures and lower RH will increase cure times. Warmer temperatures and higher RH will decrease working and curing times.

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. Prior to applying U-51 do not solvent wipe as this may introduce moisture on the substrate. If unsure as to the level of preparation needed contact Polymer Nation at techservice@polymernation.com

Note: Before applying U-51 Gloss, PN recommends thoroughly sanding the epoxy or polyaspartic basecoat with 120 grit sanding screens making sure that DFT of coating will hide scratch pattern of abrasive. Sweep and vacuum clean but do not solvent wipe.

MIXING

Mix Ratio by Volume: See Accelerator section below.

Accelerator: In applications where humidity is low, or where quicker return to service is desired, U-51 Accelerator may be used to speed up the cure of U-51. The following mix ratios are recommended in the given humidity ranges: >40% RH — See Notes; 20-40% RH — 8:1; <20% RH — 4:1. U-51 will cure sufficiently even without accelerator in these RH ranges; the accelerator should only be used when quicker return to service is desired.

Notes: Once U-51 accelerator has been added, the product is no longer shelf-life stable. Add and mix only what is needed at the time of application. Once U-51 accelerator has been added, the impact on pot life is minimal within the first 30-45 minutes. To obtain accurate relative humidity readings, it is recommended to use a calibrated digital psychrometer, or at minimum, a humidity monitor.

Color Packs: U-51 Gloss can be pigmented in the field with Polymer Nation's universal color packs. The amount of color pack to be added is as follows: 1 gal. U-51 : 8 oz. universal color pack (PN#1340). Add and mix the colorant thoroughly into U-51 before application. Once the colorant has been added, the product is no longer shelf-life stable (24 hours maximum). Add only the colorant that is needed for the immediate application.

APPLICATION

Material should be bucket rolled out of an 18" roller pan with a high-quality, shed-resistant 1/4" or 3/8" nap roller to 3-4 mils (400-500 SF/PG) in a "W" pattern to evenly spread the material. A finish back-roll in the opposite direction should be completed to ensure the material is free of roller lines and delivered at a consistent spread rate. If desired, to assist in application and leveling, 3-5% xylene may be added. The preferred non-skid finish is #1335-1 (100 grit, AO/ 1 lb) mixed well into the gallon of U-51. The roller should be run through the pan regularly to ensure the non-skid remains evenly distributed. Due to its extreme abrasion resistance, U-51 is extremely difficult to recoat. If U-51 must be top-coated, please contact PN for additional assistance. It is critical that it is sanded and abraded extremely well to achieve a surface contact angle of <50 degrees. Clean tools with a solvent similar to Xylene or Acetone.

Aggregate/Anti-Slip: Polymer Nation recommends #1335-1 (100-grit AO / 1 lb) as the preferred anti-slip additive used with U-51, especially if you are not a seasoned installer of High Wear Urethane coatings. Some other options include: PN 1336 B – blend of 240/150 grit Aluminum Oxide; PN 1337-8 L,M,S – Polycarbonate anti-slip aggregate (L – 20/40, M – 40/60, S – 60/100).

Application Tips (pigmented material): Polymer Nation recommends using a dip and roll application method when colorant has been added. Do not pour a puddle or ribbon and then spread. Once pigmented U-51 has been applied, it has been observed that a backroll with a dry, unused roller sleeve is beneficial to eliminating any roller lines that may appear after initial application.

Tires: If vehicles or equipment with rubber tires will be parked or stored over U-51 Gloss, PN recommends allowing the U-51 to cure for a minimum of 72-96 hours at ambient conditions (above 70° F/30% RH) before moving the aforementioned vehicle or equipment in place.

COMPONENTS

GENERAL PRODUCT INFORMATION

Chemistry	Urethanes
Color / Finish	Gloss · Clear and Color Packs
Number of Components	1
Solids by Volume	>98%
VOC (Mixed)	<50 g/l
Mix Ratio	See Accelerator section below
Mixed Viscosity	250-400 cP
Gel / Working Time	45-60 minutes
Application Temperature	60-90°F
Odor	None

See Technical Data Sheet for mixing instructions with U-51 Accelerator

25°C/77°F

Data gathered at temperatures of 72-75°F and 30-50% RH. Cooler temperatures and lower RH will increase cure times; warmer temperatures and higher RH will decrease working and curing times.

PHYSICAL PROPERTIES

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

Hardness	40 @ 24 hours / 65 @ 7 days	Pendulum Hardness (König)
Tensile Strength	2,380 psi	ASTM C307
Flexural Strength	3,550 psi	ASTM C580
Abrasion — Taber CS-17	0.014 g Loss	ASTM D4060
Impact Resistance	>160 inch pounds	ASTM D2794
Adhesion to Concrete	>450 psi Substrate failure	ASTM D7234
Gloss @ 60°	>90	
Color Scale	0.5-1.0	ASTM D1500
Accelerated Weathering	Non-yellowing	ASTM G154

ASTM D4060 — Abrasion Resistance CS17 1000 g 1000 cycles in g Loss. When higher abrasion resistance is required the addition of PC 1336 to the coating should be included.

CURE SCHEDULE

Dry to Touch	3-5 hours
Through Dry	7-8 hours
Dry to Walk	12-16 hours
Dry to Light Use	24 hours
Full Cure	7 days

COVERAGE & PACKAGING

Coverage Rate	400-500 sq.ft./gal.
Application Thickness	3-4 mils
Recoat Window	Due to its extreme abrasion resistance, U-51 is extremely difficult to recoat. If U-51 must be top-coated, please contact PN for additional assistance.
Packaging	1 Gallon kit

STORAGE, HANDLING & SAFETY

Store at 60-80°F. Store material between 60-80 degrees F in a protected dry location. Refer to the current Safety Data Sheet (SDS) for this product before handling, mixing, or applying. Use appropriate personal protective equipment and ensure adequate ventilation during application and cure. Dispose of material, containers, solvents, etc., per Federal, State and local guideline, rules and laws

TEST DATA

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.

TYPICAL VALUES

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.