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# POLYMER NATION CHEMICAL COMPANY, LLC

*Setting the Standard*

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## TECHNICAL DATA SHEET: U-51 1K CLEAR ALIPHATIC MCU

### Product Overview

U-51 is a non-yellowing, one-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.

### Uses and Benefits

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 walls and adheres well to many substrates including concrete, gypsum, cement board, metals, vinyl, PVC and fiberglass. It can also be applied direct to concrete as a sealer and topcoat.

### Limitations

U-51 is designed to be applied at 3-4 mils as a top coat on floors and walls. Allowing to puddle will have a negative effect on the finish. Ideal application temperatures to be between 60-90°F. Cooler temperatures will increase cure times. Warmer temperatures will decrease working and cure times. Higher RH will shorten dry time. Verify that substrate temperature is 5 degrees above the dewpoint during application and cure of material to avoid a potential blush or 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.03732 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).

### Application

Pour material needed from the container onto the floor and spread with a 5-7 mil squeegee. Back roll with a 1/4" nap roller to 3-4 mils in a crosshatch pattern to evenly spread the material. Strike off the material in the same direction as material was squeegeed. Material can also be bucket-rolled using a 1/4" nap roller cover. For a non-skid finish, add 192 grams per 2 gallon kit of PN 1337 S (1-10 oz cup struck off at the top) or 2.6 lbs. of PN 1335 AO and stir to completely incorporate. Recoat within 10 hours. Clean tools with a

solvent similar to Xylene or Acetone. PN C-55 can be used to accelerate the cure.

### Technical Data

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

Packaging	2 Gallon kits
Mix Ratio by Volume	N/A
Mixed Viscosity	250-400 cP 25°C/77°F
Work Time	45-60 minutes
Dry to Touch	5 hours
Through Dry	7-8 hours
Dry to Walk	12-16 hours
Dry to Light Use	24 hours
Full Cure	7 days
Pendulum Hardness (König)	40 @ 24 hours
Pendulum Hardness (König)	65 @ 7 days
Gloss @ 60 Degree Angle	>90
VOC's of Mixed Material	<50 g/l EPA Method 24
Color Scale	0.5-1.0 per ASTM D1500
Solids by Volume Mixed	>99%
Application in Mils	3-4 (400-500 sq.ft./gal.)
Available Colors	Clear and Color Packs

## PHYSICAL PROPERTIES U-51 1K CLEAR ALIPHATIC MCU

Description	Standard	Results
Tensile Strength	ASTM C307	2,380 psi
Moisture Absorption	ASTM C413	<.17 weight increase
Coefficient of Thermal Lineal Expansion	ASTM C531	N/A
Compressive Strength	ASTM C579	N/A
Modulus of Elasticity	ASTM C580	N/A
Flexural Strength	ASTM C580	3,550 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 1000 cycles in g Loss	ASTM D4060	0.014 g Loss (when higher abrasion resistance is required the addition of PC 1336 to the coating should be included)
Adhesion to Steel	ASTM D4541	>1,000 psi
Hiding Power	ASTM D5150	N/A
Flammability When Adhered to Concrete	ASTM D635	Self-Extinguishing
Adhesion to Concrete	ASTM D7234	>450 psi Substrate failure
Coefficient of Friction Dry Ave. three tests	NFSI B101.0	0.72
Coefficient of Friction Wet Ave. three tests	NFSI B101.1	0.67
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.

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