



Polymer Nation – PolyGuard 162

Technical Data Sheets

Primer: P-99 – Epoxy MVS primer (clear or pigmented)

Body: SP-91 – Polyaspartic for SCAPES (pigmented)

SCAPES Aggregate Filler mixed with body coat

Wear: U-51 w/Anti-skid – Clear Aliphatic MCU



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405 Oakwood Ave
Waukegan, IL 60085

TECHNICAL DATA SHEET: P-99 MVS EPOXY PRIMER

Product Overview

P-99 is a state of the art, moisture vapor suppression (MVS) epoxy primer system. It employs a modified epoxy backbone to achieve deep penetration and alkali resistance. This deep penetrating, tenacious bonding material, when properly installed, reduces moisture vapor emission rates, through concrete, to 0.1 perms or less. This allows for subsequent coating of troubled concrete with non-permeable floor finishes.

Uses and Benefits

P-99 is used when concrete testing, per ASTM F2170, shows average RH readings between 75% and 99% or when moisture vapor emissions are suspected, and an additional level of moisture protection is desired. P-99 is installed directly to properly prepared concrete. Testing shows P-99 performs well both on concrete prepared to a, ICRI, CSP 2 and CSP 3.

Limitations

P-99 is designed to be applied between 16 mils for single coat or two 10 mil applications. Ideal application temperatures to be between 60-85°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 a potential amine blush.

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.

application performs at a perm rate of 0.062 perms, it is best, when performance is most critical, to apply in two 10 mil applications and to test for holidays using a high voltage holiday detector. Recoat within 24 hours. Clean tools with a solvent similar to Xylene or Acetone.

Mixing

Do not split kits. Mix ratio is 2 parts P-99 Part A to 1 part P-99 Part B. Combine all of part A and B into a single container, large enough to except the entire kit. Mix using a 350 RPM mixer using an appropriate mixing blade for 1.5 – 2.5 minutes making sure to not introduce excessive air into the material.

Application

Pour the entire content from the container onto the floor and follow normal squeegee and back roll or cut and roller techniques. Successful material performance requires a monolithic, pinhole-free finish. Achieving this finish is dependent on the substrate condition and the installers skill lever. While independent testing shows one 16 mil

Technical Data

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

Packaging	3 Gallon kits
Mix Ratio by Volume	2 gal A, 1 gal B
Mixed Viscosity	700-1000 cP 25°C/77°F
Gel Time	17-20 minutes
Dry to Touch	4 hours
Through Dry	6 hours
Dry to Walk	8 hours
Dry to Light Use	16 - 24 hours
Full Cure	7 days
Shore D Hardness	D65 @ 24 hours
Shore D Hardness	D78 @ 7 days
Gloss @ 60 Degree Angle	80-90
VOC's of Mixed Material	<50 g/l EPA Method 24
Color Scale	0.5-1.0 per ASTM D1500
Solids by Volume Mixed	100%
Application in Mils	16 mils or two 10 mil coats (80-100 sq. ft./gal)
Available Colors	Clear or color packs

PHYSICAL PROPERTIES – P-99 MVS EPOXY PRIMER

Description	Standard	Results
Tensile Strength	ASTM C307	7,870 psi
Moisture Absorption	ASTM C413	<0.2% weight increase
Coefficient of Thermal Lineal Expansion	ASTM C531	15-17 x 10 ⁻⁶ 27-30 x 10 ⁻⁶
Compressive Strength	ASTM C579	13,000 psi
Modulus of Elasticity	ASTM C580	N/A
Flexural Strength	ASTM C580	5,550 psi
Water Vapor Transmission	ASTM D1653	See ASTM D3010
Impact Resistance	ASTM D2794	>160 inch pounds
Perm Rating - Independent Certificate from third party testing	ASTM F3010	Yes 0.062 perms
Adhesion	ASTM D3359	5A
Abrasion Resistance CS17 1000 g 1000 cycles in g Loss	ASTM D4060	0.049g 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	2-5/200
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	N/A

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

* Store material between 60-85 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.



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TECHNICAL DATA SHEET: SP-91 POLYSCAPES POLYASPARTIC

Product Overview

SP-91 combines our robust, proprietary polyaspartic resin blend with our UV-stable aliphatic hardener to create a fast-curing, durable polyaspartic with unique performance characteristics. SP-91 is a 100% solids, low odor, low viscosity polyaspartic that combines properties of amazing flexibility, toughness and UV resistance.

Uses and Benefits

SP-91 is primarily used as a binder resin for our decorative, aggregate filled Polyscapes systems, due to its unsurpassed UV stability, toughness and abrasion resistance. It adheres well to many substrates including concrete, gypsum, cement board, metals and fiberglass.

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

Limitations

SP-91, along with PN 1440 aggregate blend powder, is designed to be applied between 1/16" – 1/8" as a floor system (approximately 90-127 sq ft/kit). 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.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.

material, back roll material with a metal-tine spike roller or a fresh plastic-tine spike roller 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. 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 – 1.84 gal B – 1.16 gal)
Mix Ratio by Volume	≈1.5:1 (A:B)
Mixed Viscosity	450-650 cP 25°C/77°F (liquids only)
Gel Time	10-12 minutes
Dry to Touch	2-3 hours
Through Dry	6-8 hours
Dry to Light Use	16-24 hours
Full Cure	7 days
Pendulum Hardness (König)	20 @ 24 hours
Pendulum Hardness (König)	50 @ 7 days
Gloss @ 60 Degree Angle	85-95
VOC's of Mixed Material	Near zero... <50 g/l EPA Method 24
Color Scale	N/A
Solids by Volume Mixed	100%
Application in Mils	60-80 (90 – 127 sq. ft./kit)
Available Colors	Clear

Mixing

It is always recommended to mix the entire kit, whenever possible, to avoid off-ratio mixtures. Mix ratio (liquids only) is approximately 1.5 parts of SP-91 Part A to 1 part SP-91 Part B. Combine all of part A and B into a single container, large enough to accept the entire kit (Part A packaging is designed to contain the entire kit for mixing). At low speed, mix A&B liquids for 15-30 seconds using a 350 RPM mixer making sure to not introduce excessive air into the material. Under agitation, add 32 lb. bag of PN 1440 aggregate blend powder and mix thoroughly for 60-90 seconds.

Application

Pour ribbon of mixed material onto the floor and spread using a 1/4" or 3/8" steel v-notched rake. Upon placement of

PHYSICAL PROPERTIES
SP-91 POLYSCAPES POLYASPARTIC

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	0.026g 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.

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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.

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

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

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

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

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