Polymer Nation – FlexGuard 462

Technical Data Sheets

Filler Material: SP-15 - Filler/Patch

Prime: F-01 – Clear Epoxy primer

Broadcast Silica Sand

Slurry: SP-20 SL - Urethane membrane w/ synthetic rubber

Broadcast EPDM

Wear: U-91 – Flexible Urethane (pigmented)

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405 Oakwood Ave
Waukegan, IL 60085

TECHNICAL DATA SHEET: SP-15 EPOXY PATCHING PASTE

Product Overview

SP-15 consist of a high viscosity, nonylphenol-free, epoxy resin, a thickened, cycloaliphatic amine reactant and a free-silica, powder (PN 1170). This combination, when properly mixed, achieves a non-shrinking patching paste with high compressive and tensile strength and which is easy to shape, sand and grind after initial cure.

Uses and Benefits

SP-15 is most often used to patch concrete holes, cracks, divots and non-moving joints. It can also be used when a feathered edge is required for smooth transitions between differing planes.
SP-15 kit will cover approximately 3.2 sq. ft. at 1/4" or 150 LF of 1/4" X 1/4" joint.

Limitations

SP-15 is designed to be applied at temperatures 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 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.

Mixing

It is always recommended to mix the entire kit, whenever possible, to avoid off-ratio mixtures. A mixture consists of 1 quart SP-15 Part A, 1 pint SP-15 Part B and 3 LB. of Part C (PN 1170). Combine part A and B into a single container, large enough to accept the entire kit (1 mix equals .5 gallons when Part C is added). Premix liquids at 350 RPM for 1 minute using an appropriate mixing blade, and slowly add Part C under agitation until desired paste consistency is achieved.

Application

Place mixed material on a mortar board and apply mixed material within 20 minutes using patching techniques. Recoat within 5 hours. If after 5 hours, abrade material with a minimum of 100 grit sanding screens. 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	0.5 Gallon kits
Mix Ratio by Volume	2:1 plus Part C
Mixed Viscosity	3500 cP 25°C/77°F
Gel Time	20 minutes
Dry to Touch	2.5 hours
Through Dry	4 hours
Dry to Grind	4 hours
Dry to Light Use	6-8 hours
Full Cure	7 days
Shore D Hardness	D65 @ 24 hours
Shore D Hardness	D81 @ 7 days
Gloss @ 60 Degree Angle	30-40
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	N/A
Available Colors	Clear or Color Packs

PHYSICAL PROPERTIES
SP-15 EPOXY PATCHING PASTE

Description	Standard	Results
Tensile Strength	ASTM C307	3,200 psi
Moisture Absorption	ASTM C413	<.2 weight increase
Coefficient of Thermal Lineal Expansion	ASTM C531	24.5 x 10-6 in/in/F
Compressive Strength	ASTM C579	15,200 psi
Modulus of Elasticity	ASTM C580	1,300 psi
Flexural Strength	ASTM C580	5,000 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	N/A
Abrasion Resistance CS17 1000 g 1000cycles in g Loss	ASTM D4060	0.083g 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	N/A
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 guidelines, 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: F-01 CLEAR EPOXY FLOOR COATING

Product Overview

F-01 is our workhorse, clear, 100% solids epoxy. It can be ordered with 3 different speed hardeners- Standard, Medium and Fast. This allows for easy transition between cold and warm weather applications and cure times. It can be used with our full line of colorants (PN 1339) to provide extreme color flexibility. Ease of use, good flow and leveling, toughness and flexibility are characteristics of this high quality epoxy. The cured material has good, broad-range, chemical resistance as well as good abrasion and impact resistance.

Uses and Benefits

F-01 is most often used as a primer, broadcast resin and topcoat for resinous concrete flooring projects. It can also be used as a patching or trowel material when combined with PN 1170 or PN 1324 aggregate.

Limitations

F-01 is designed to be applied at 8-12 mils as a primer, 12-20 mils as a body coat and 10-16 mils as a topcoat. Ideal application temperatures to be between 60 – 85°F. Cooler temperatures will increase cure times. Warmer temperatures will decrease working and cure times. Polymer Nation has tested its materials with our PN 1338 metallic powders. While we have taken every precaution to formulate an exceptional epoxy coating, certain undesired results in so-called epoxy metallic systems in which Polymer Nation resins are used (i.e. F-01, F-41, P-01) may occur due to a number of factors including mixing, placement techniques and thermal variations in the installation area. Good coating practices are required when installing our coatings. See our Solution Guide for helpful information. 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.

Mixing

It is always recommended to mix the entire kit, whenever possible, to avoid off-ratio mixtures. Mix ratio is 2 parts F-01 Resin (Part A) to 1 part F-01 Hardener (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 entire content of mixed material onto the floor in ribbons. Spread material using a flat blade or notched squeegee. Back roll material using a 3/8" nap roller cover to maintain an even mil thickness of material. To make an epoxy patching material mix no more material than can be mixed and applied within the stated gel time and add the selected aggregate until the desired thickness is achieved. 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, 15 & 165 Gallon Kits
Mix Ratio by Volume	2:1
Mixed Viscosity	500-600 cP 25°C/77°F
Gel Time S/M/F	45/30/15 minutes
Dry to Touch	8/4/2 hours
Through Dry	10/7/5 hours
Dry to Walk	12/8/6 hours
Dry to Light Use	24/16/12 hours
Full Cure	7 days
Shore D Hardness	D65 @ 24 hours
Shore D Hardness	D78 @ 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	100%
Application in Mils	8-20 (80 – 200 sq. ft./gal.)
Available Colors	Clear and Color Packs

PHYSICAL PROPERTIES – F-01 CLEAR EPOXY FLOOR COATING

Description	Standard	Results
Tensile Strength	ASTM C307	2,870 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	13,000 psi
Modulus of Elasticity	ASTM C580	N/A
Flexural Strength	ASTM C580	5,750 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	0.053g 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	Moderate 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: SP-20 SL FLEXIBLE URETHANE MEMBRANE SLURRY

Product Overview

SP-20 SL is a flexible aromatic urethane slurry that has extreme tensile strength with an A shore hardness of 75. It is easy to install, has low odor and has tensile elongation properties of over 1000%. It creates a soft walking surface as a component in Polymer Nation floor systems.

Uses and Benefits

SP-20 SL is primarily used as a basecoat for soft surface applications. It can also be bulked up using fumed silica to make a flexible patching paste.

Limitations

Apply SP-20 SL slurry with either a 1/2" or 3/8" V-notch Kraft tool. It is not intended as a finish coat as it will amber. 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 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.

Mixing

Do not split kits. Combine part A and B into a single container, *large enough* to accept the entire kit (1 mix equals 6 gallons when Part C is added). Premix liquids at 350 RPM for 1-2 minutes using an appropriate mixing blade or mixing machine. Once Part A & B have been combined and mixed, add 15 lbs. of PN 1620 S rubber granules and mix accordingly.

Application

*SP-20 SL should be applied to a primed surface seeded lightly with silica broadcast sand.
*One mix of SP-20 SL will cover **85-90** sq. ft. when spread with a **1/2"** V-notch Kraft tool.
*One mix of SP-20 SL will cover **120-125** sq. ft. when spread with a **3/8"** V-notch Kraft tool.
*Each square foot will require a min of .25 lb. of PN 1620 S broadcast EPDM rubber granules if a broadcast to rejection is desired.

Pour material onto floor and spread to desired thickness using a screed rake and back roll techniques. If a broadcast has been selected, begin broadcasting evenly across the floor, following the same order in which the coating was installed. Whenever possible, work the shorter distance not the longer as this will help keep a fresh edge and make for easier blending. 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	5 Gallon kits
Mix Ratio by Volume	4.30 gal A, 0.70 gal B, 15 lbs EPDM rubber granules (PN 1620 S)
Mixed Viscosity	2000 cP 25°C/77°F (A&B)
Gel Time	23 minutes
Dry to Touch	2.5 hours
Through Dry	4 hours
Dry to Walk	8 hours
Dry to Light Use	12 hours
Full Cure	7 days
Shore A Hardness	40 @ 24 hours
Shore A Hardness	75@ 7 days
Gloss @ 60 Degree Angle	75-80
VOC's of Mixed Material	<50 g/l EPA Method 24
Color Scale	N/A
Solids by Volume Mixed	100%
Application in Mils	See Application section
Available Colors	Gray

PHYSICAL PROPERTIES
SP-20 SL FLEXIBLE URETHANE MEMBRANE

Description	Standard	Results
Tensile Strength	ASTM C307	2,870 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	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
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	0.043g 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	N/A
Coefficient of Friction Wet Ave. three tests	NFSI B101.1	N/A
Accelerated Weathering Testing	ASTM G154	N/A

* Dispose of material, containers, solvents, etc., per Federal, State and local guidelines, 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-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.

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.

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