



Product Data Sheet & Application Guide

LP-PDS-032822

LIQUID POLYMER

CONCENTRATED CROSS-LINKING VINYL ACETATE-ETHYLENE COPOLYMER PRIMER & ADDITIVE FOR CEMENT-BASED PRODUCTS

DESCRIPTION: Smith's Liquid Polymer is a concentrated cross-linking vinyl acetate-ethylene copolymer for use as a site batching additive for a variety of concrete applications or as a primer.

When Smith's Liquid Polymer is mixed with water, Portland Cement and aggregates, it yields a material which can be used for structural repairs, sloping mortars, and more. Once fully cured, the repair is water submersible, freeze/thaw resistant with tenacious adhesion as well as improved flexibility. When mixed with water only, Smith's Liquid Polymer may be used to prime concrete and other mineral based substrates prior to resurfacing overlays, such as Smith's 4in1 Overlay.

RECOMMENDED USES:

- Overhead/Vertical/Horizontal Structural Concrete Repairs
- Concrete Fountains, Dams, Bridge Columns, Swimming Pools, Ponds, water submersed repairs, etc.
- Plaster
- Concrete Overlays & Micro-Toppings
- Primer for Concrete Repairs
- Screeds & Sloping Mortar Applications
- Bonds to:
 - Concrete & Polymer Modified Overlays
 - Terrazzo
 - Stone & Quarry Tiles
 - Wood Subfloors (As a primer over underlayment grade plywood or OSB)

HIGHLIGHTS:

- Concentrated, Multipurpose Additive & Primer
- Yields a freeze/thaw stable finished product
- Greater resistance to hydrolysis vs. vinyl acetate homopolymer
- Tenacious Bond
- Easy to Use - Provides Excellent Workability in concrete mixes
- Achieves Excellent Binder Efficiency when mixed with concrete
- Low Odor & Zero VOC's
- Water Submersible once fully cured – Does not Emulsify in water once fully dry

AVAILABLE KIT SIZES:

- SCS-LP-128 1 Gallon Jug
- SCS-LP-640 5 Gallon Plastic Pail
- SCS-LP-6400 50 Gallon Drum

STORAGE: Indoors between 50°F (10°C) to 85°F (29°C)

INSTALLATION TEMPERATURE: 50°F (10°C) to 100°F (38°C) with less than 95% Ambient Humidity

**Cooler substrate temperatures will significantly slow the cure rate & extend the cure time before being able to shave or diamond grind*

SHELF LIFE: 2 Years in original, unopened containers. 3 months once opened; 30 days once mixed with water

LIMITATIONS:

- DO NOT FREEZE LIQUID
- DO NOT APPLY if rain is expected within 24 hours after application
- DO NOT EXPOSURE FRESHLY MIXED CONCRETE to frost or allow to freeze until fully cured
- NOT for Use as a wear surface sealer or cure and seal

CURE TIMES (72°F / 50% Relative Humidity):

**Higher temperatures and humidity will shorten pot life.*

When used as:	Primer (1:3)	Mortars & Plaster	Overlays
Pot-Life	3 hrs.	20 min.	30 min.
Working Time	15 to 25 min.	15 min.	20 to 25 min.
Tack Free / Dry to Touch	30 to 45 min.	60 min.	2 to 3 hrs.
Coat or Stain	N/A	4 to 6 hrs. <i>(with water-based sealers & coatings)</i> 24 to 36 hrs. <i>(with high solids & solvent based)</i>	4 to 5 hrs. <i>(with water-based stains, Dyes & sealers)</i> 18 to 24 hrs. <i>(with high solids & solvent based)</i>
Foot Traffic	N/A	5 to 6 hrs.	3 to 5 hrs.
Heavy Traffic (Vehicular/Forklift)	N/A	30 to 36 hrs.	36 to 48 hrs.

PROPERTIES (Typical Results):

Property	Test Method	Results
Volatile Organic Compounds (VOC's)	ASTM D3960	Zero (0) g/L
Volume Solids (Concentrate)	ASTM D2196	55% to 61%
Viscosity @ 77°F (Concentrate)	ASTM D2196	≤1500 cP
Volume Mix Ratio		Varies

APPROXIMATE COVERAGE:

Varies depending on application

Standard Priming = 200 to 350 sq.ft. per gallon
(mixed 3 parts water to 1 part Smith's Liquid Polymer by volume)

Slurry Priming = typically 175 to 250 sq.ft. per gallon

**Varies based on surface texture, porosity, etc.*

PERSONAL PROTECTION EQUIPMENT:



○ In case of insufficient ventilation or when spraying, wear suitable respiratory equipment (TC 19C NIOSH/MESA)



○ Wear Chemical Resistant Gloves - Avoid contact with skin, may cause allergic reaction or skin irritation



○ Wear Chemical Resistant Eye Protection - Prevent contact with eyes

California Prop 65 – This product does NOT contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.



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PARTS BY VOLUME

APPLICATION	Smith's Liquid Polymer	Smith's 4in1 Overlay	Water (Clean, Potable)	Portland Cement (Type II, White or Gray)	Marble Flour (Calcium Carbonate)	Dry Plaster Sand (Grit #2)	Quartz Sand (SiO ₂)						Washed Pea Stone (3/8")
							Grit #12	Grit #16	Grit #20	Grit #30	Grit #60	Grit #90	
Structural Repairs (Vertical Mix & Horizontal Sloping / Screed Mortar)	1		3	2			4	4	2	2	2		
Structural Repairs (Horizontal, ≤1")	1		3	1		3							
Structural Repairs (Horizontal, ≥1")	1		3	2		3							3
Plaster (Vertical Base Coat)	1		3	2					2	2	2		
Plaster (Vertical Finish Coat)	1		3	2								2	
Overlay - Microtopping (≤1/64")	1		3	1	2								
Overlay - Resurfacing (Flat Trowel or Broom finish ≤1/8")	1		3	1						2	1		
Overlay - Spray (≤1/8" Pool Texture/Spray/Knock-down /Skip-Trowel/Non-Slip)	1		3	1					1	1			
Overlay - High Build Resurfacer (1/8"-1/4")	1		3	1				2	1	1	1		
Primer - Porous Substrates	1		3										
Slurry Primer – Non-Porous Substrates	1	1	1										

TEMPERATURE and HUMIDITY: Substrate temperature, air and materials must be maintained between 50°F (10°C) to 100°F (38°C) with less than 95% Ambient Humidity during application.

NOTE: During application in environments using temporary heat, make sure to exhaust emissions and toxic fumes from temporary heaters to the exterior of the building to prevent health hazards and damage to work. Many temporary heating methods emit unburned petroleum into the air which act as a bond breaker once it falls onto the surface of the substrate

- Precautions must be taken when using LP, gasoline, diesel, etc. fueled temporary heat.
- Always shut off temporary heat at least 2 to 3 hours prior to application to reduce risk of airborne petroleum contamination
- Always clean the mechanically prepared surface with [Smith's Oil Clean](#) or TSP using an auto-scrubber or Pressure Washer followed by a thorough clean water rinse when temporary heat has been in use

INSPECT THE SUBSTRATE: Ensure substrate is sound/solid, free of any contaminants that may act as a bond breaker, such as dirt/debris, oil/grease, loose paint/coatings, wax, silicone, etc.

CONTAMINATION OF SUBSTRATE: Concrete is porous and can become contaminated with oils, chemical from spills, etc. which act as a bond breaker. Prior to any product application, determine if a potential bond breaker exists and a proper course of remediation. Contact Smith Paint Products for remedial recommendations while following local regulations regarding contaminant and disposal.

OIL CONTAMINATION: Use [Smith's Oil Clean](#) to remove oils, (i.e. petroleum, synthetic & food oils) from the surface of the concrete prior to mechanical preparation.

CHECK FOR MOISTURE:

Exterior Concrete – Must be dry at time of application

Interior Concrete – Follow testing manufacturer's instructions precisely or visit www.astm.org, see ASTM F1869 or F2170, to purchase test methods. Testing MUST occur within an acclimated, interior environment for valid/conclusive results. Follow the thresholds for moisture vapor transmission of the finish sealer or coating.

Smith Paint Products is strictly a product manufacturer & does NOT offer any testing or analysis. When in doubt, hire a qualified third party testing firm.





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SUBSTRATE PREPARATION: Varies based on application and substrate type.

Preparation for Structural Repair Mortars - Achieve a CSP 3 to 6 (Concrete Surface Profile in accordance with ICRI Guideline 310.2R2013, as published by the International Concrete Repair Institute) yielding a surface texture similar to 80 grit sand paper or more course in order to maintain long term adhesion to the substrate.

- **Steel Shot Blast (Shot size S-230 to S-330 grit recommended):** Uniformly profile and clean concrete substrates overlapping each pass until white, clean concrete exists. Use magnetic broom to remove excess shot, sweep to remove large debris and vacuum to remove fine dust. Avoid stationary blasting as micro-cracking the concrete surface may potentially causing future coating delamination
- **Scarify:** Sweep to remove large debris and vacuum to remove fine dust. Scarify to uniformly remove the concrete surface until white. Thoroughly vacuum all dust and debris. Ideal preparation method for weak concrete surfaces, previously coated floors, adhesive residues or thick build applications greater than 1/2" average thickness
- **Needle Scaler:** Use to profile small repair areas and remove loose surfaces or existing coatings from hard to reach areas. Thoroughly vacuum to remove all dust / debris or pressure wash

Preparation for Overlays - Achieve a CSP 2 to 5 (Concrete Surface Profile in accordance with ICRI Guideline 310.2R2013, as published by the International Concrete Repair Institute) yielding a surface texture similar to 80 grit sand paper or more course in order to maintain long term adhesion to the substrate.

- **Diamond Grind:** Use 16 to 25 grit metal bond diamonds or Roller Bush Hammer heads (on concrete substrates only) with an appropriate industrial, weighted head floor grinder to thoroughly profile/remove the substrates surface until uniformly dull & porous. Shot-blasting or Pressure washing to remove fine dust is highly recommended after diamond grind using a zero degree rotating nozzle at ≥12,000 work units (Gallons per Minute X Pressure Washer PSI = work units)
- **Steel Shot Blast (Shot size S-230 to S-330 grit recommended):** Uniformly profile and clean concrete substrates overlapping each pass until white, clean concrete exists. Use magnetic broom to remove excess shot, sweep to remove large debris and vacuum to remove fine dust. Avoid stationary blasting as micro-cracking the concrete surface may potentially causing future coating delamination
- **Scarify:** Sweep to remove large debris and vacuum to remove fine dust. Scarify to uniformly remove the concrete surface until white. Thoroughly vacuum all dust and debris. Ideal preparation method for weak concrete surfaces, previously coated floors, adhesive residues or thick build applications greater than 1/2" average thickness
- **Etching Compound for porous concrete:** [Smith's Green Clean Pro](#) may be used ONLY as follows:
 - Etching bare exterior concrete with a rough or broom finish that has not been previously sealed. Rinse Smith's Green Clean Pro via pressure washing using a zero degree rotating nozzle at ≥12,000 work units (gallons per minute x psi of pressure washer = work units). DO NOT ATTEMPT to use Green Clean Pro on burnished, Power-troweled or smooth, hard trowel-finished concrete substrates
 - Remediation method for removing densifiers/silicates AFTER one of the previous mentioned mechanical preparation

NOTE:

- DO NOT USE MURIATIC/HYDROCHLORIC ACID TO PREPARE CONCRETE AS CHLORIDE CONTAMINATION MAY OCCUR
- When etching, ensure all Green Clean Pro has been thoroughly removed with potable water with no remaining soapy residue or cement slurry
- DO NOT USE on "Green" concrete (less than 30 days old), Hard Trowel Finished concrete or previously sealed/coated/painted concrete to including any type of curing compound

Key in all termination points using a diamond cutting blade prior to any above preparation method.

Refer to ICRI Guideline 310.2R2013 for more in-depth preparation details and recommendations.

TEMPORARY HEAT: During application in environments using temporary heat, make sure to exhaust emission / toxic fumes from temporary heaters to the exterior of the building to prevent health hazards and damage to work. Many temporary heating methods emit unburned petroleum into the air which act as a bond breaker once it falls onto the surface of the substrate

- Precautions must be taken when using LP, gasoline, diesel, etc. fueled temporary heat
- Always shut off temporary heat at least 2 to 3 hours prior to application coating application to reduce risk of airborne petroleum contamination
- Always clean mechanically prepared surface with [Smith's Oil Clean](#) or TSP using an auto-scrubber followed by a thorough clean water rinse when temporary heat has been in use
- Fisheyes are a result of surface contamination

JOINTS: Honor expansion joints at the finish floor elevation. Follow ACI 224.3R-95: Joints in Concrete Construction guidelines for proper filling of construction and control joints.

ACI recommends allowing a concrete slab to cure for a minimum of 60 to 90 days or longer to allowing the slab to shrink & acclimate to the intended joint width thus reducing the risk of joint wall separation from the joint filler. Cooler climate applications such as freezer & coolers must be brought up to and held at a minimum of 45°F substrate temperature for no less than 10 days prior to as well as 7 to 10 days after filling with an appropriate semi-rigid joint filler, such as [Smith's Poly JF](#), ideally longer if possible.

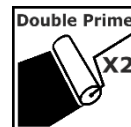
AS A PRIMER: When used as a primer, Smith's Liquid Polymer is Alkali Resistant thus ensuring tenacious adhesion to the substrate and priming reduces the risk of a substrate absorbing too much of the liquid in cement based products as well as reducing risk of pinholes from occurring.

Once the substrate is properly prepared for the product which will be adhered to the primer, mix as follows:

1 Part Smith's Liquid Polymer : 3 Parts Water



Spray or pour out the primer and massage into the pores using a clean exploded tip nylon bristle push broom. After 20 to 30 minutes, walk back onto the primed surface to spread out any puddles using the push broom. Allow to fully dry to a tack free film before applying cement based products over primer.



Double priming may be necessary over highly absorbent substrates. When double priming, apply the first layer diluted with 5 parts Water to 1 Part Smith's Liquid Polymer then work into the substrate using a clean exploded tip, nylon push broom leaving no puddles. Once the first coat of primer has absorbed for at least 30 minutes and has fully absorbed into the substrate, apply the second coat of primer mixed 1 Part Smith's Liquid Polymer to 3 Parts Potable Water. The first layer may be damp dry prior to applying the second coat of primer. Work any puddles into the surrounding areas ensuring an even coat of primer is achieved. Allow to fully dry to a tack free film before applying cement-based products over the primer.





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Priming Non-Porous Substrates to receive an Overlay.

Properly prepare to include cleanly the substrate with an appropriate detergent to remove the type of soils, oils or wax present then thoroughly clean water rinse. Once dry, mix the primer as a slurry using equal parts in a 5 gallon pail using a paint mixing paddle attached to a low speed 1/2" drill (≤ 450 RPM):

1 Part Smith's Liquid Polymer : 1 Part Water : 1 Part Smith's 4in1 Overlay

Pour out the slurry primer in a ribbon across the substrate then work evenly, but very thin onto the surface using an exploded tip, nylon push broom ensuring no puddles remain. The slurry priming mixture should yield approximately 200 sq.ft. per mixed gallon but will vary depending on the surface texture and porosity of the substrate. Allow the slurry primer to hard set, test to determine when ready for overlay by standing on toes and twisting foot from side to side. Primer is ready to cover once the strong even to remain on the substrate when a shoe twisting doesn't remove the primer. This priming technique is recommended when adhering to Ceramic/Granite/Marble/ Porcelain/Quarry Tile, existing/properly prepared coatings, etc.

For best results:

- DO NOT APPLY primer in direct sunlight and ideally on surfaces with temperatures ranging between 50°F to 90°F with less than 90% Humidity while in a wet state.
- DO NOT EXPOSE fresh primer to water for at least 8 to 12 hours after initial application and for 3 days for water submersion
- DO NOT USE as a primer for cement-based self leveling overlayers which are to be mechanically polished or exposed to forklift traffic, instead use Smith's Epoxy U100, Epoxy FC125, Epoxy MAC100 or Epoxy MAC125 with a full sand broadcast to prime for forklift and polished overlay applications

See individual product data sheets for more in-depth details.

MIXING FOR ALL OTHER APPLICATIONS:

See Chart on Page 2

Only mix enough Mortar/Plaster/Overlay that can be placed and finished while able to maintain a wet edge between batches. Chill water to extend working time in warmer applications. Warmer temperatures and high humidity will reduce working time.

CLEAN-UP: Clean wet tools, equipment, etc. with water. Once set, residue will need to be removed mechanically grinding or razor shaving. Cured product on tools would require scraping or possibly the use of a soldering torch (MAP gas) to overheat the material for easier scraping from metal tools.



SLIP RESISTANCE: Smith Paint Products recommends the use of angular slip-resistant aggregate in all coatings that may be exposed to wet, oily or greasy conditions as well as any condition where increased traction may be necessary. It is the contractor and end users' responsibility to determine the appropriate traction needs and footwear necessary for the conditions as well as setting performance parameters prior to beginning the application, testing to determine parameters have been met upon completion to achieve the end users documented safety standards.

Mock-ups are highly recommended as part of the evaluation process to determine the appropriate amount of slip-coefficient necessary for the environment.

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