

# Smith's

## POLYURETHANE

# Poly-FLEX

100% Solids

## Product Data Sheet

POLYFLEX-PDS-012725

**2-COMPONENT, LOW ODOR, HIGH BUILD, FLOWABLE, MOISTURE TOLERANT, 100% SOLIDS POLYURETHANE**

**DESCRIPTION:** Smith's Poly-FLEX is a 2-Component, Moisture Tolerant, Semi-Rigid 100% Solids Polyurethane Flowable Resurfacing Compound with good elongation characteristics to aid in suppressing minor cracks from telegraphing through yet rigid enough for traditional applications. Walkable in roughly 4 hours to accept subsequent layers/systems. Applies from a minimum of 30 mils up to 5 inches neat. Accepts Vinyl Chip broadcasts directly into the wet film.

Once cured, Smith's Poly-FLEX is freeze/thaw stable & moisture tolerant, allowing for use as a base for interior & exterior resinous or cement overlays (with a sand broadcast into Smith's Poly-FLEX surface). Also suitable over radiant floor heating systems.

### RECOMMENDED USES:

- Base for broadcast systems (i.e. Quartz / Vinyl Chip / Rubber or EPDM granules), Smith's CPR Cementitious Polyurethanes, Smith's Epoxy SLS Heavy-Duty Slurry, Smith's Epoxy HD100 Mortar system, Smith's 4in1 Overlay, Smith's Metallic & Luster systems & more
- Bonds to:
  - Ceramic, Porcelain, Stone & Quarry Tiles
  - Coatings (Cementitious Urethane, Epoxy, MMA, Polyaspartic, Polyurethane)
  - Concrete & Polymer Modified Overlays
  - Metal Floors (Stainless Steel, Iron, Steel, Copper, Treated Aluminum\*)
  - Terrazzo
  - Wood Subfloors (underlayment grade plywood or OSB)

### HIGHLIGHTS:

- Flowable & Self-Smoothing
- High Solids Content - Contains no Solvents nor Water
- Chemical Resistant
- Flexible yet High Strength
  - Reduces Shear Stress at bond line
  - Stronger than typical epoxy mortar systems
  - Suppresses Minor Cracks from Telegraphing to surface
  - Resists Aging & Elasticity Fatigue
- Tenacious Bond to a variety of substrates
- Low Odor & Zero VOC's
- Suitable for use over In-floor Radiant Heat systems
- Apply subsequent layers within in 4 hours (72°F & 50% Humidity)
- Withstands up to 15 lbs. (per ASTM F1869) & up to 90% In-situ Relative Humidity (per ASTM F2170)
- Accepts Heavy Forklift Traffic after overnight cure
- Performs well in areas of regular water exposure & submersion

### STORAGE:

Indoors between 50°F (10°C) to 85°F (29.4°C)

### SUBSTRATE SURFACE TEMPERATURE:

Optimal between 50°F (10°C) to 90°F (32°C) with 25% to 85% Ambient Humidity

\*Temperatures between 32°F to 50°F will significantly extend the cure time

### SHELF LIFE:

1 Year in original, unopened containers. Once open, 30 days

### AVAILABLE KIT SIZES:

SDS-PolyFLEX-320KIT 2.5 Gallon kit

### COLORS:

Natural Beige - \*For Solid Colors - Use Smith's ISC Color Packs

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

\*Product is moisture-cured. Cure time is affected by temperature & humidity.

Pot-Life	20 minutes
Working Time (Self-Healing)	17 to 25 minutes
Gel Time	40 minutes
Tack Free	2 to 2 ½ hours
Recoat Window	4 to 24 hours
Foot Traffic	8 to 10 hours
Heavy Traffic (Full / Wheeled Traffic)	18 to 24 hours
Full Chemical Resistance	7 days

### CURED COATING PROPERTIES (DRY FILM):

Property	Test Method	Results
Compressive Strength, psi (MPa)	ASTM C109M	14,010 psi (96.6 MPa)
Shear Stress, psi (MPa)	ASTM D790	680 psi (4.68 MPa)
Elongation at break (cured for 7 days at 72°F)	ASTM D732	30%
Conical Mandrel – Resistance to Cracking	ASTM D522	Pass
Hardness – Shore D	ASTM D2240	66 (±5) neat
Tear Resistance, pound-force foot (Torque)	ASTM D1004	20,651 lb.ft. (28 kN m)
Flammability	ASTM E648	Class 1 (Self Extinguishing)
Adhesion to Concrete - Pull Strength, psi (MPa)	ASTM D4541	Concrete Failure
Adhesion to Steel - Pull Strength, psi (MPa)	ASTM D4541	2,320 psi (16.0 MPa)
Viscosity – Mixed	ASTM 2196	5,740 cP
VOC Content	ASTM D3960	Zero (0) g/L
Volume Solids (Mixed)	ASTM D2196	100%
Mix Ratio by Volume		5A to 1B

### APPROXIMATE COVERAGE (DRY FILM):

Coverage will vary depending on the application thickness, floor profile & absorbency of the substrate.  
Coverage Equation:  $1604 \div \text{milage} = \text{Dry Film Thickness} \times 2.5$  (for full kit yield)

Thickness	Approximate Yield per Gallon	Approximate Yield per Full Kit
30 mils (1/32")	53 ft <sup>2</sup> (4.92 m <sup>2</sup> )	132 ft <sup>2</sup> (12.26 m <sup>2</sup> )
40 mils	40 ft <sup>2</sup> (3.72 m <sup>2</sup> )	100 ft <sup>2</sup> (9.29 m <sup>2</sup> )
50 mils	32 ft <sup>2</sup> (2.97 m <sup>2</sup> )	80 ft <sup>2</sup> (7.43 m <sup>2</sup> )
60 mils (1/16")	26 ft <sup>2</sup> (2.42 m <sup>2</sup> )	66 ft <sup>2</sup> (6.13 m <sup>2</sup> )
90 mils	17 ft <sup>2</sup> (1.58 m <sup>2</sup> )	44.5 ft <sup>2</sup> (4.13 m <sup>2</sup> )
125 mils (1/8")	12.5 ft <sup>2</sup> (1.16 m <sup>2</sup> )	32 ft <sup>2</sup> (2.97 m <sup>2</sup> )
175 mils (3/16")	9 ft <sup>2</sup> (0.84 m <sup>2</sup> )	22.5 ft <sup>2</sup> (2.09 m <sup>2</sup> )
250 mils (1/4")	6 ft <sup>2</sup> (0.56 m <sup>2</sup> )	16 ft <sup>2</sup> (1.49 m <sup>2</sup> )
425 mils (3/8")	3.75 ft <sup>2</sup> (0.35 m <sup>2</sup> )	9.4 ft <sup>2</sup> (0.87 m <sup>2</sup> )
500 mils (1/2")	3.2 ft <sup>2</sup> (0.29 m <sup>2</sup> )	8 ft <sup>2</sup> (0.74 m <sup>2</sup> )



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## Typical Chemical & Stain Resistance

Covered Spot Test - 250 mil film at 7 day cure:

E - Excellent; G - Good (slight sign of exposure/stains, coating recovers);

NR - Not Recommended (Permanent Damage)

ACIDS	24-hour Exposure
-------	------------------

Acetic Acid 25% (Vinegar)	G
Citric Acid 10%	G
Lactic Acid (Milk)	G
Phosphoric Acid 85%	G
Sulfuric Acid 25% (Battery Acid)	NR
Sulfuric Acid 98%	NR
Hydrochloric Acid 32% (Muriatic)	G
Nitric Acid 50%	NR

BASES	24-hour Exposure
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Ammonium Hydroxide 10%	E
Sodium Chloride 20%	E
Sodium Hydroxide 50%	G
Sodium Hypochlorite (Bleach)	G
Trisodium Phosphate 10%	E

ALCOHOLS	24-hour Exposure
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Ethylene Glycol (Antifreeze)	E
Hand Sanitizer	E
Isopropyl Alcohol 91%	E
Methanol	G

SOLVENTS	24-hour Exposure
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Acetone	G
d-Limonene	G
MEK	G
Methylene Chloride	E
Mineral Spirits	E
PGMEA	G

HYDROCARBONS	24-hour Exposure
--------------	------------------

Brake Fluid	NR
Transmission Fluid	G
Motor Oil	E
Gasoline	E
Kerosene	E
Hydraulic Fluid	E
Skydrol® - LD-4	NR

MISCELLANEOUS	24-hour Exposure
---------------	------------------

Coffee	E
Coke®	E
Dish Detergent (Dawn®)	E
Ketchup	G
Monster Energy® Drink	G
Mustard	G
Tide® 1%	E
Windex® (Ammonia Based)	E
Wine - Red	G

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

**TEMPERATURE & HUMIDITY:** Substrate temperature & materials must be maintained between 40°F (4.4°C) to 85°F (29.4°C) with less than 80% Ambient Humidity for 24 hours prior to & 24 hours after installation. **\*Do Not Install coatings when the Dew point is within 5° of the temperature**

## MOISTURE TESTING OF CONCRETE:

### Interior Concrete Moisture Vapor & Alkalinity Testing -

Concrete moisture vapor testing is highly recommended prior to application of this product over interior concrete to attain long term adhesion as well as help to indicate other potential risks such as contaminants, etc. that may pose a risk for delamination, chemical attack, etc. that may not be caused by moisture vapor emissions or high alkalinity.

Maximum interior moisture readings are as follows:

ASTM F2659 <5.5% MC (used to determine placement of below test locations)

ASTM F1869 <15 lbs. / 1,000 sq.ft. / 24 hours

ASTM F2170 <90% Relative Humidity

ASTM F3441 9 to 12 pH using a pH Pen with Distilled Water

\*Additional testing & treatment may be necessary below 8.5 or greater than 12 pH

Visit [www.astm.org](http://www.astm.org) to purchase the test methods. Interior environments require an acclimated environment for the results to be valid & conclusive.

Testing pH levels with a pH pencil or Litmus paper along with distilled water is a very inexpensive, easy way of identifying a potential risk, in conjunction with Moisture Vapor testing methods to determine whether more in-depth testing should occur.

[Smith's Epoxy MAC100](#) or [Smith's Epoxy MAC125](#), in conjunction with proper testing & mechanical preparation, can suppress the moisture vapor emission rate to a level within the tolerance of subsequent coatings & traditional floor covering needs.

Smith Paint Products is strictly a product manufacturer which does NOT offer any testing or analysis but may be able to offer guidance to an appropriate testing lab or third-party inspector. When in doubt, hire a qualified third-party testing firm with appropriate certifications & credentials.

\*ASTM® is a registered trademark / service mark of ASTM International

**Exterior Concrete Moisture Testing** - Must be clean, sound, solid after mechanically preparing to obtain good long-term performance. See preparation section for more information.

Check exterior concrete moisture via:

[ASTM F2659](#) <6% MC

[ASTM D4263](#) No indication of moisture present, neither dampness indicated visually by color darkening of concrete nor condensation on the concrete surface or the plastic

**Moisture Level of Wooden Substrates** - Use a wood moisture meter to moisture of the wood prior to coating. No greater than:

<8% MC for interior wooden substrates

<12% MC for exterior wooden substrates  
 (over APA rated marine or exterior grade)

Wood must be sound, solid & in good condition with no evidence of previous water damage, rot, mold, etc., otherwise, replace the damaged sections with new wood.

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## LIMITATIONS:

- When applying multiple layers of Smith's Poly-FLEX, allow to hard cure then sand/grind previous layers to achieve optimal mechanical adhesion
- Avoid exposing freshly applied Smith's Poly-FLEX to air movement, direct sunlight, freezing, water & direct sources of heat (i.e. radiant in-floor heat)
- For exterior / water submersion / industrial / wheeled traffic / fork lift traffic:
  - CSP 3 to 6 profile is required for mechanical preparation
  - NOT U.V. Stable - Exposure to U.V. light will dull or chalk over time
- Apply a minimum 1/16" average depth over wooden substrates
  - Wood substrates must yield the correct deflection criteria of L / 360 per ASTM C 627 (i.e. Deflection from 300 lbs. concentrated load standard test method)
- DO NOT INSTALL when the Dew Point is within ±5° of the air temperature
- NOT for waterproofing nor elastomeric deck membrane applications



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**Chemical Contamination** – Additional testing may be required to determine the type of chemical contaminant, such as Petrographic core analysis. Once type of chemical is identified, contact Smith Paint Products for recommendations.

**Oil Contamination** – [Smith's Oil Clean](#) may be used to remove oils, such as petroleum, synthetic & food oils, from the surface of the concrete prior to mechanical preparation of >CSP 3. Once oil has been removed from the surface, thoroughly rinse with clean, potable water followed by mechanically preparation of the concrete as stated on the next page.

If oil continues to "weep" out of the concrete after mechanical preparation, clean again with [Smith's Oil Clean](#) then encapsulate the oil / grease remaining in the concrete while the substrate remains damp with water but ensure no standing puddles exist prior to application of 10 to 12 mils of [Smith's Epoxy MAC125](#) primer. Allow to cure for a minimum of 5 hours or overnight then use an 80 to 100 grit sanding screen under green pad on a floor machine:

- Orbital floor machine = ≤300 rpm & lightweight
- Square head floor machine = 3,000 rpm with no added weight to abrade the surface & remove any contaminants that may have floated to the surface of the epoxy before it hard set. Vacuum off the sanding dust then wipe the epoxy primer surface with a slightly damp microfiber mop head using some Acetone.

*\*DO NOT USE Denatured Alcohol or Xylene for this application.*

Next, apply 10 to 15 mils of [Smith's Epoxy MP300](#), [Smith's Epoxy FC125](#) or [Smith's Epoxy U100](#) with a full broadcast at a rate of 100 to 150 sq.ft. of a washed, dry natural 20 to 40 mesh Quartz sand to rejection. Once dry, sweep, scrape then thoroughly vacuum to remove the loose sand prior to applying Smith's Poly-FLEX.

**TEMPORARY HEAT:** Moisture vapor is emitted by fueled temporary heaters which creates condensation (*i.e. Dew Point*) on a floor surface & may cause an amine blush with epoxy products subsequently impacting following layers wetting & adhesion properties. Some temporary heaters may emit unburned petroleum into the air, especially if the equipment is not functioning properly, which will act as a bond breaker once it falls onto the surface of the substrate.

Take precaution 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 an amine blush occurring with epoxy-based products
- Fisheyes are a result of surface contamination or an amine blush on an epoxy based previous layer which must be cleaned off via scrubbing with a degreaser in addition to mechanical preparation
  - Solvent wiping the substrate does not sufficiently for remove these residues
  - After mechanically preparing surface, always clean the surface with [Smith's Oil Clean](#) using an auto-scrubber followed by a thorough clean water rinse when temporary heat has been used to minimize risk of surface defects and/or peeling
- Ensure exhaust emissions & toxic fumes from temporary heaters exhaust to the exterior of the building to prevent health hazards & damage to work

## NECESSARY TOOLS & EQUIPMENT:

- Plastic sheeting or Ram Board® to cover floor for mix station
- Paint mixing paddle attached to a ½" drill (high torque, variable speed ≤450 rpm)
- Cleaning solvent (acetone, MEK, or xylene)
- Measuring cups (for part mixing applications)
- Spiked shoes or cleats
- Masking tape
- Gauging tool:
  - 1/8" X 1/8" V-Notch Squeegee for 30 mil average
  - 1/4" X 1/4" V-Notch Squeegee for 60 mil average
  - Sled Style or CAM Gauge Rake with extension pole (greater than 60 mils)
- Premium, non-shed ¾" nap solvent resistant paint roller covers
- Spiked porcupine roller with extension pole
- Paint roller frame with extension pole

**SUBSTRATE PREPARATION:** 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.

*Should verification of proper adhesion be desired or when applying Smith's Poly-FLEX over an existing coating, follow ASTM D 4541 using an Elcometer to determine a direct tensile pull-off strength greater than 250 psi (1.7 MPa) to pass the test. It is highly recommended that a 10 foot by 10 foot test area be applied of the entire desired floor system to perform an in-situ direct tensile bond test to determine adhesion strength values.*

Recommended mechanical preparation methods for concrete:

- **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 planetary floor grinder to thoroughly profile & remove the substrates surface until uniformly dull
  - Ideal preparation method when applying Smith's Poly-FLEX over solid, well-bonded existing coatings or ceramic tile systems over concrete if the final layer is intended to be a high solids floor coating system. *Smith's Poly-FLEX is NOT recommended over tile over wooden substrates*
- **Steel Shot Blast** (*Shot size S-230 to S-330 grit recommended*) – Uniformly profile & clean concrete substrates overlapping each pass until white, clean concrete exists. Use magnetic broom to remove excess shot, sweep to remove large debris & 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 & vacuum to remove fine dust. Scarify to uniformly remove the concrete surface until white. Thoroughly vacuum all dust & debris. *Ideal preparation method for weak concrete surfaces, previously coated floors, adhesive residues or thick build applications greater than ½" average thickness*
- **\*Silica Contaminate Removal** – [Smith's Green Clean Pro](#) may be used ONLY as follows:
  - Remediation method for removing densifiers / silicates AFTER one of the above-mentioned mechanical preparation methods

## NOTE:

- **DO NOT USE MURIATIC / HYDROCHLORIC ACID TO PREPARE CONCRETE** AS CHLORIDE CONTAMINATION MAY OCCUR
- When etching, ensure all Smith's 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



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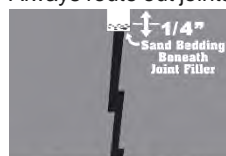
Key in all termination points using a diamond cutting blade prior to any above preparation method. Please refer to ICRI Guideline 310.2R2013 for more in-depth preparation details and recommendations.

**JOINTS & SUBSTRATE REPAIRS:** Honor expansion joints at the finish floor elevation. Follow [ACI 224.3R-95](#): Joints in Concrete Construction guidelines for proper filling joints.

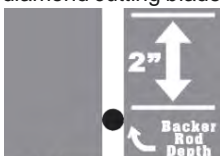
ACI® recommends allowing a concrete slab to cure for a minimum of 60 to 90 days or longer to allowing the slab to shrink & acclimate to the intended joint width thus reducing the risk of joint wall separation from the joint filler.

Cooler climate applications must be remain 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](#) or [Smith's Poly JF<sub>FC</sub>](#), ideally longer if possible. Static joints may allow the coating system to bridge over [Smith's Poly JF](#) but it is NOT recommended to install a floor coating system over caulking, silicone, cement patching compounds, Polyurea & traditional Polyurethane flexible joint fillers.

Always route out joints with an appropriate width diamond cutting blade



**Control Joint**



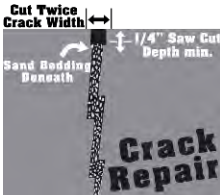
**Construction Joint**

pieces of the concrete are removed & repaired prior to joint filling. Should joint walls require extensive repairs, cut out the weak concrete back to a sound, solid area then infill with [Smith's SKM](#), [Smith's Epoxy FRM](#) or similar.

Support the joint filler & assist in sag reduction by filling the bottom of the joint with a bond breaker, such as sand, especially for use in shallow joints less than 2" depth. Use backer rod ONLY if the joint filler is to be applied greater than 2" above the backer rod. Fill the joint with [Smith's Poly JF](#) or [Smith's Poly JF<sub>FC</sub>](#) twice as deep as the joint width.

**CONCRETE SUBSTRATE REPAIRS** – Patching of chips, gouges, etc. may be repaired with a variety of different, compatible coating materials, to include, [Smith's SKM](#), [Smith's Epoxy FRM](#) mortar, [Smith's Epoxy GEL-150](#), [Smith's Epoxy U100](#) or [Smith's Epoxy FC125](#) mixed with Silica Fume, [Smith's Poly PCF-45](#) or similar.

Saw cut cracks open with crack chaser to remove the weak wall of the crack on both sides & clean out debris then thoroughly vacuum prior to repairs. Small, isolated uneven, low gouges can be prepared using a needle scaler. Ensure resinous patching products are hard enough to walk on without imprinting or damage before proceeding with next step.



Repairs with water-based cement compounds must be fully cured then mechanically prepare the concrete surface prior to coating. Ensure the following for proper adhesion & long-term performance:

- Fully cured testing via ASTM F2659 with ≤4% MC or a mat test for no less than 4 hours per ASTM D4263 with no signs of darkening nor condensation
  - Portland Cement based = 2 to 3 days for each 1/4" ave. thickness
  - Calcium Alumina-based cement = 24 hours for each 1/4" ave. thickness
- Rated direct wear traffic
- Cement-based - Calcium Alumina, CSA or Portland cement based only
  - NOT RECOMMENDED FOR USE OVER UNDERLAYMENT GRADE PATCH / LEVELERS to include polymer modified synthetic gypsum-based**
- Non-water soluble – Must be rated for exterior use on the data sheet
- Minimum 5,000 psi. once fully cured

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Full depth concrete repairs (without a layer of existing, cured concrete to adhere) must be pre-filled with either a Type K Concrete or a shrinkage compensated high strength mortar allowing at least 24 hours prior to quantitative moisture content testing to determine if less than 4% MC has been achieved prior to applying Smith's Poly-FLEX.

**Preparing Wooden Substrates** – Wood substrates APA<sup>SM</sup> rated (either exterior grade or marine grade) must be sound, solid, firmly fastened to the joints with no loose boards / planks, free of contaminants such as oil, wax, sealers, paint, etc. and without any insect damage or rot. The floor should not deflect under a 300 lbs. load more than the "span" divided by 360 for residential use or by 720 for commercial applications. Examples of maximum deflection below:

- Residential
  - L/360 (300 lbs. deflection test) or <1/2" (13mm) deflection in 15 ft. (4.6 m)
- Commercial or subfloors with 19.2" (48.7 cm) o.c. joists & 24" (61 cm) o.c. truss systems
  - L/720 (300 lbs. deflection test) or <1/4" (6mm) deflection in 15 ft. (4.6 m)

Thoroughly sand the entire surface to be coated then vacuum to remove all dust & debris paying close attention to seams, board joints, knot holes, fastener holes, etc. Seal off any holes / penetrations using foam sealants, which may require fire stop foam depending on local building codes. All board seams or other voids which may allow liquid to leak through should be patched or skim coated with an appropriate resinous based product, such as [Smith's SKM](#), [Smith's Epoxy GEL-150](#), [Smith's Poly-JF](#), [Smith's Poly-JF<sub>FC</sub>](#) or similar.

When ready, prime the wood substrate with a 3/8" non-shed paint roller with any of the products listed below:

- [Smith's Epoxy FW38](#) – Cures within a few hours at 72°F
- [Smith's Epoxy U100](#) – Recoat in 5 up to 24 hours at 72°F
- [Smith's Epoxy FC125](#) – Recoat in 2 1/2 up to 12 hours at 72°F

Once the primer is ready to recoat, proceed with remaining layers of the desired coating system. Primer is considered ready when firm set & does not transfer anything to your finger when touched but may feel slightly tacky.

**\*DO NOT INSTALL Smith's Poly-FLEX over oil contaminated, dry-rotten, insect damaged or unsound substrates.**

Smith's Poly-FLEX is recommended as a base coat over wooden substrates at minimum of 50 mils neat prior to a resinous floor coating system to minimize wood seam cracks telegraphing to the finish surface. For cementitious overlays, broadcast clean quartz into the fresh surface of Smith's Poly-FLEX to ensure a decent anchor for the overlay.

**Please note that Smith's Poly-FLEX is flexible but not elastomeric and does not provide any waterproofing properties.**

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### Existing Ceramic / Porcelain Tile or Methyl Methacrylate floor coatings

Ensure the existing ceramic / porcelain tile or MMA floor coating system is sound, solid and well bonded to its substrate with no hollow areas, broken sections or delamination present, otherwise, complete removal of the failing floor will need to be removed. After determining suitability, heavily clean the floor to remove all soils from the surface that may act as a bond breaker to include dirt, oils, grease, etc. followed by an adhesion tape test to ensure nothing remains on the surface prior to application. Diamond grind to ensure proper adhesion to the existing tile or existing MMA substrates, especially if the floor is heavily worn, stained and/or soiled ("See "Diamond Grind" under "Mechanical Profile" section on page 3).

When in doubt, diamond grind with metal bond diamonds to remove all shiny surfaces, stains, etc. to a uniformly dull, clean surface with a mild scratch pattern then thoroughly vacuum to remove dust and debris, clean heavily with a neutral pH floor detergent followed by a clean, potable water rinse until no soap suds remain and allow to dry overnight if possible. Should oil remain present, such as in ceramic tile grout joints after mechanical preparation, remove the tile in that section down to clean, bare concrete.

Once the substrate is thoroughly clean / prepared, apply enough of Smith's Poly-FLEX to cover the high areas of the floor (at least 30 mils above the highest points of the floor) to yield a smooth, uniform surface. Existing tile floors (due to the crown of the tile, depth / width of grout joints, tile corners checking, etc.) or textured surfaces such as MMA Vinyl Chip systems may require deeper average application thickness to fully cover the typography of the existing floor.

**PRIMER:** Priming may be necessary if the substrate is very porous (readily absorbs water within 60 seconds) or when the coating system will be exposed to environments with high static rolling loads (such as hospitals, forklift traffic, automotive service areas, aircraft hangars, etc.), underwater submersion, thermal shock, heavy impact as well as inherently weak and/or brittle substrates (i.e. lightweight concrete, tile mud beds, etc.). After mechanically preparing the substrate, prime the concrete with:

- [Smith's Epoxy FW38](#) – Recoat once hard set, typically in a few hours at 72°F
- [Smith's Epoxy U100](#) with a full sand broadcast – Recoat in 5 to 24 hours at 72°F
- [Smith's Epoxy FC125](#) with a full sand broadcast – Recoat in 2½ up to 12 hours at 72°F

### Oil Stop priming over concrete:

- Remove oil with [Smith's Oil Clean](#) then mechanically prepare the substrate to a CSP 4 to 6 prior to installing the 2 coat priming process for [Smith's Epoxy MAC125](#) with a full Quartz broadcast in the second primer coat – Cure time between coats is 2 to 3 hours at 72°F (Click hyperlinks for more detailed instructions)

### Highly absorbent substrates should be double primed using:

- [Smith's Epoxy FW38](#) – Recoat once hard set, typically in a few hours at 72°F

**MIXING:** Only mix enough Smith's Poly-FLEX that can be placed and finished in roughly 15 minutes to allow for an appropriate flow time on the floor. Keep a wet edge between batches. Warmer temperatures and high humidity will reduce working time.

**Do NOT add solvent.**



**Full Kit Mixing** – Premix the Part A using a low-speed drill ( $\leq 450$  RPM) with an appropriate paint mixing paddle attached then pour the contents of Part B into the Part A container while continuing to mix for 3 minutes ensuring no unmixed Part A remains at the bottle or sides of the pail.

**Tinting Full Kits** – If a color other than natural beige is desired, add 1 unit of [Smith's ISC Industrial Solid Color Packs](#) to an entire kit of Smith's Poly-FLEX while mixing Parts A and B.

### Parts by Volume Mixing Ratio

**5A : 1B**  
**MIX RATIO**

When volume mixing, pour out the appropriate volume of each component into separate paint measuring cups to ensure a proper volume mix ratio then, in a separate mixing vessel, pour in each measured component then mix for 2 to 3 minutes using a paint mixing paddle attached to a low-speed drill ( $\leq 450$  RPM) ensuring that the sides & bottom of the mixing vessel have been thoroughly mixed as well as the center of the container.

**Optional Color Packs** - Add 4% to 8% by volume depending on color of [Smith's ISC Industrial Solid Colorant](#) to Smith's Poly-FLEX.

**APPLICATION:** Once mixed, immediately pour out in a straight bead onto the area to be resurfaced. Spread with an appropriate gauge rake or notched squeegee to meter the depth at the desired thickness and evenly cover the area. Pour out a ribbon of freshly mixed Smith's Poly-FLEX into the edge of the previously spread mix & continue spread while walking in the mixture with spiked / cleated shoes.

Break the surface tension & bubbles using a porcupine roller attached to an extension pole immediately following the gauging step to release any trapped air bubbles as well as help relax the surface to aid in smoothly finishing.

Ideally, the mixing, delivery & pouring of mixed Smith's Poly-FLEX, gauging, smoothly and porcupine roller steps should each have a single, dedicated person performing these activities. More laborers are required for larger projects with multiple batches being mixed concurrently.

**NOTE:** Do NOT Mix more Smith's Poly-FLEX than can be mixed, placed, finished, tied into with the next batch within a 12-minute window at 72°F / 50% Humidity to allow time for the product to heal & self-smooth without further manipulation before the working time is over. Higher temperatures will reduce working time & pot-life.

**CLEAN-UP:** Clean wet tools using a solvent such as Xylene.

Once hard set, Smith's Poly-FLEX will need to be removed mechanically from floors via 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.

**FINAL LAYERS or TOPCOATS:** Once Smith's Poly-FLEX is cured hard enough to accept foot traffic without imprinting or damaging the surface, subsequent layers may proceed.

Smith Paint Products offers a variety of systems and topcoats depending on the desired finish, chemical exposure, etc. Please contact Smith Paints toll free or visit [www.smithpaints.com](http://www.smithpaints.com) for topcoat options.



**ALWAYS BOX COLORS!**  
to Ensure Colors Match between Batches



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## Product Data Sheet

POLYURETHANE

**Poly-FLEX**  
100% Solids

POLYFLEX-PDS-012725

2-COMPONENT, LOW ODOR, HIGH BUILD,  
FLOWABLE, MOISTURE TOLERANT,  
100% SOLIDS POLYURETHANE

**SLIP RESISTANCE:** *Smith's Poly-FLEX is not intended to be directly exposed to traffic without additional layers or a topcoat.*

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.

**MAINTENANCE:** *Smith's Poly-FLEX is not intended to be directly exposed to traffic without additional layers or a topcoat. \*Maintenance guidelines apply to the final wear surface, not to Smith's Poly-FLEX. See product data sheet for the exposed wear surface.*

**LIMITED LIABILITY:** Upon information, belief and to the best of our knowledge, the information contained herein is true accurate as of the date of issuance of this particular document and any and all information conveyed, whether expressed or implied is subject to change without prior notice. We guarantee our products to conform to Smith Paint Products quality control standards, but not to any other standards unless specifically stated in written documentation. Smith Paint Products assumes no liability for coverage, performance, injury results from use, misuse or usage not described in any promotional materials or regulatory infraction determined by using our products. The applicator assumes all liability for use and local regulatory compliance. Promotional materials are not a supplementation to any product purchase agreement, nor should such documents be considered a type of contract, if any is reduced to writing.

Liability is limited to replacement of defectively manufactured product of the same type and cost of the originally purchased product upon presentation of a valid, fully paid invoice at the time of a claim. No warranty shall be granted for outstanding invoices or for accounts with unpaid balances until paid in full. No damages, whether consequential, liquidated or other, shall be provided under this Limitation of Liability and Limited Warranty. Should a product defect be suspected at the time of application, cease use of the product immediately and notify Smith Paint Products for investigation as you will be responsible for the cost to repair or replace any work performed with product(s) suspected of defect. Record batch codes and save all products you purchased in order for any warranty to occur along with the invoice that matches said quantity.

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