Smith’s Poly-FLEX is a 2-Component, Moisture Tolerant, Semi-Rigid 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 2 ½ hours and accepts subsequent layers/systems in as little as 4 hours. Applies from a minimum of 25 mils up to 5 inches in a single lift. Tenaciously bonds to a variety of substrates.

Once cured, Smith’s Poly-FLEX is freeze/thaw stable and moisture tolerant, allowing for use as a base for interior and 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 Quartz, CPR Cementitious Polyurethane, Vinyl Chip, Epoxy SLS100 Slurry, Epoxy HD-100 Mortar, 4in1 Overlay, Metallic & Luster systems and more
- Bonds to:
  - Ceramic, Porcelain, Stone & Quarry Tiles
  - Coatings (Epoxy, Cementitious Urethane, Polyaspartic, Polyurethane)
  - Concrete & Polymer Modified Overlays
  - Metal Floors (Stainless Steel, Iron, Steel, Copper, Treated Aluminum™)
  - Terrazzo
  - Wood Subfloors (underlayment grade plywood or OSB)

HIGHLIGHTS:
- Self-Leveling
- High Solids Content - Contains no Solvents or Water
- Chemical Resistant
- Flexible
- Tenacious Bond
- Low Odor & Zero VOC’s
- Suppresses Minor Cracks from Telegraphing to surface
- Resists Aging & Elasticity Fatigue
- Suitable for use over In-floor Radiant Heat systems
- Accepts a variety of Floor Coating & Cementitious Overlays within in 4 hours at 72°F & 50% Humidity
- Withstands up to 15 lbs. (per ASTM F1869) and up to 90% In-situ Relative Humidity (per ASTM F2170)

STORAGE:
Indoors between 50°F - 85°F

INSTALLATION TEMPERATURE RANGE:
50°F to 90°F with 20% to 90% Ambient Relative Humidity
*Substrate temperatures between 32°F to 50°F will significantly slow the cure rate, and extend the cure time before being able to shave or diamond grind

SHELF LIFE:
1 Year in original, unopened containers. Use within 30 days of opening

AVAILABLE KIT SIZES:
SDS-PJF45-320KIT  2.5 Gallon kit

COLORS: Natural Beige - * Use Smith’s ISC Color Packs to tint

### CURED COATING PROPERTIES (DRY FILM):

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive Strength, psi (MPa)</td>
<td>ASTM C109M</td>
<td>14,010 psi (96.6 MPa)</td>
</tr>
<tr>
<td>Adhesion to Concrete</td>
<td>ASTM D4541</td>
<td>Concrete Fails</td>
</tr>
<tr>
<td>Adhesion to Steel - Pull Strength, psi (MPa)</td>
<td>ASTM D4541</td>
<td>2,320 psi (16.0 MPa)</td>
</tr>
<tr>
<td>Adhesion to Concrete - Pull Strength, psi (MPa)</td>
<td>ASTM D4541</td>
<td>Concrete Failure 950 psi (6.5 MPa)</td>
</tr>
<tr>
<td>Viscosity – Mixed</td>
<td>ASTM 2196</td>
<td>5,740 cPs</td>
</tr>
<tr>
<td>Volatile Organic Compounds (VOC’S)</td>
<td>ASTM D3960</td>
<td>Zero g/L</td>
</tr>
<tr>
<td>Volume Solids (Mixed)</td>
<td>ASTM D2196</td>
<td>100%</td>
</tr>
<tr>
<td>Volume Mix Ratio</td>
<td></td>
<td>5A to 1B</td>
</tr>
</tbody>
</table>

### APPROXIMATE COVERAGE (DRY FILM):

Coverage will vary depending on the application thickness, floor profile and absorbency of the substrate.

Coverage Equation: 1604 + milage = Dry Film Thickness X 2.5 (for full kit yield)

<table>
<thead>
<tr>
<th>Thickness</th>
<th>Approximate Yield per Gallon</th>
<th>Approximate Yield per Full Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mils</td>
<td>64 ft² (2.09 m²)</td>
<td>160 ft² (2.09 m²)</td>
</tr>
<tr>
<td>30 mils (1/32&quot;)</td>
<td>52 ft² (2.09 m²)</td>
<td>130 ft² (2.09 m²)</td>
</tr>
<tr>
<td>40 mils</td>
<td>40 ft² (2.09 m²)</td>
<td>100 ft² (2.09 m²)</td>
</tr>
<tr>
<td>50 mils</td>
<td>32 ft² (2.09 m²)</td>
<td>80 ft² (2.09 m²)</td>
</tr>
<tr>
<td>60 mils (1/16&quot;)</td>
<td>26 ft² (2.09 m²)</td>
<td>66 ft² (2.09 m²)</td>
</tr>
<tr>
<td>90 mils</td>
<td>17 ft² (2.09 m²)</td>
<td>44 ft² (2.09 m²)</td>
</tr>
<tr>
<td>125 mils (1/8&quot;)</td>
<td>12.5 ft² (2.09 m²)</td>
<td>31 ft² (2.09 m²)</td>
</tr>
<tr>
<td>175 mils (3/16&quot;)</td>
<td>9 ft² (2.09 m²)</td>
<td>22.5 ft² (2.09 m²)</td>
</tr>
<tr>
<td>250 mils (1/4&quot;)</td>
<td>6 ft² (2.78 m²)</td>
<td>16 ft² (2.78 m²)</td>
</tr>
<tr>
<td>425 mils (3/8&quot;)</td>
<td>3.75 ft² (2.09 m²)</td>
<td>9.37 ft² (2.09 m²)</td>
</tr>
<tr>
<td>500 mils (1/2&quot;)</td>
<td>3.2 ft² (2.78 m²)</td>
<td>8 ft² (2.78 m²)</td>
</tr>
</tbody>
</table>
### Typical Chemical & Stain Resistance

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

- **E** - Excellent: no sign of exposure/stains, coating recovers
- **G** - Good: slight sign of exposure/stains, coating recovers
- **NR** - Not Recommended: Permanent Damage

#### Acids

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

#### Bases

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

#### Alcohols

- Ethylene Glycol (Antifreeze) E
- Hand Sanitizer E
- Isopropyl Alcohol 91% E
- Methanol G

#### Solvents

- Acetone G
- d-Limonene G
- MEK G
- Methylene Chloride E
- Mineral Spirits E
- PGMEA G

#### Hydrocarbons

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

#### MISCELLANEOUS

- 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

### LIMITATIONS:

- **NOT UV Stable** – Exposure to Ultra Violet light will dull or chalk over time
- Apply a minimum 1/16” average depth over wooden substrates
- When applying Smith’s Poly-FLEX in multiple layers, always allow to hard cure and sand previous layers to achieve optimal mechanical adhesion
- Avoid exposing freshly applied Smith’s Poly-FLEX to air movement, direct sunlight, freezing, water and direct sources of heat (i.e. radiant in-floor heat)
- For exterior, immersion, industrial and wheeled traffic/fork lift traffic conditions, a minimum of an ICRI CSP 3 profile is required for mechanical preparation
- 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)

- **TEMPERATURE and HUMIDITY:** Substrate temperature, air and materials must be maintained between 50°F (10°C) and 90°F (32°C) with less than 80% Ambient Humidity during application.
- **DO NOT INSTALL** when the Dew Point is within ±5° of the air temperature

### 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.

### CHECK FOR MOISTURE:

- It is highly recommended to test concrete substrates prior to installing interior industrial floor coating systems using via both Calcium Chloride (ASTM F1869) and In-situ Relative Humidity (ASTM F2170) methods to accurately determine both the Moisture Vapor Emission Rate (ASTM F1869) and the available Moisture Content (ASTM F2170) at the time of testing. Using only one test method will not give all of the necessary information and may not indicate other potential risks such as contaminates, etc. that may pose a risk for delamination, chemical attack, etc. which are not caused by moisture vapor emissions or high alkalinity.

Smith’s Poly-FLEX can suppress up to 90% Relative Humidity and 15 lbs. Moisture Vapor Transmission. Use Smith’s Epoxy MAC100 or Epoxy MAC125 with moisture readings up to 100% RH and 25 lbs. with up to 14 pH but not greater, to reduce the moisture vapor emission rate to a level within the tolerance of subsequent coatings and traditional floor covering needs.

Follow the testing manufacturer’s instructions precisely or visit www.astm.org, see ASTM F1869 or F2170, to purchase the test methods. Testing MUST occur within an acclimated, interior environment for the results to be valid and conclusive.

### CONTAMINATION OF SUBSTRATE:

Concrete is porous and can become contaminated with oils, chemical from spills, etc. which act as a bond breaker. Determine if a potential bond breaker exists and a proper course of remediation. Contact Smith Paint Products for remedial recommendations or contact a qualified third party inspector. When in doubt, hire a qualified third party testing firm.

### OIL CONTAMINATION:

Use Smith’s Oil Clean to remove oils, (i.e. petroleum, synthetic and food oils) from the surface of the concrete prior to mechanical preparation.

### NECESSARY TOOLS & EQUIPMENT:

- Plastic Sheeting or Ram Board to cover floor for mix station
- Paint mixing paddle attached to a 1/2” drill (Variable Speed ≤450 rpm)
- 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
- Spiked, Non-Shed 3/4” Nap Paint Roller Covers
- Paint Roller Frame with Extension Pole
- Spiked Porcupine Roller with Extension Pole
- Spiked shoes or Cleats
- Cleaning Solvent (Acetone, MEK, Xylene)
- Magic Trowel, Flat Squeegee or Flex Steel Blade Smoother
- Masking Tape
- Measuring Cups (For Part Mixing Applications)
- Cleaning Solvent (Acetone, MEK, or Xylene)

### NOTE:

The Mix station and all application equipment should be ready for immediate use prior to mixing any product. Higher temperatures and humidity will shorten pot life.
burned

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**SUBSTRATE PREPARATION**

**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 acts 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 2-3 hours prior to application of Smith’s Poly-FLEX to reduce risk of airborne petroleum contamination.
- Always clean the 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.
- Fishies are a result of surface contamination.

**MECHANICAL PROFILE:** 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 perform an in-situ direct tensile bond test to determine adhesion strength values.

Recommended preparation methods below:

- **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 and remove the substrates surface until uniformly dull. Ideal preparation method for application of 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 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-etching 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 ½” average thickness.

- **Silica Contaminate Removal** – Smith’s Green Clean Pro buffered acidic etching compound 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/HYDROCLORIC 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.

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

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**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 60-90 days or longer to allowing the slab to shrink and acclimate to the intended joint width thus reducing the risk of joint wall separation from the joint filler. Cooler climate applications such as freezer and 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 7-10 days after filling with an appropriate semi-rigid joint filler, such as Smith’s POLY JF, ideally longer if possible.

**PRIMING:**

**Priming for Polished & Exposed Traffic Applications** – Once prepared, prime the concrete with Smith’s Epoxy U100, Smith’s Epoxy FC125, Smith’s Epoxy MAC100 or Smith’s Epoxy MAC125 with a full broadcast of 20 to 40 mesh quartz sand at a rate of 0.5 sq.ft. per lbs. Allow the primer to dry hard enough to allow walking on and vacuum without damage to the primer. See individual product data sheets for more in-depth details.

**Priming for Underlayment Applications** – Priming for underlayment applications is only necessary if the concrete is very porous (readily absorbs water within 20 seconds) or environments with high static rolling loads (such as hospitals, forklift traffic, automotive service areas, aircraft hangars, etc.). After mechanically preparing the substrate, prime the concrete with:

- Smith’s Epoxy WB – Overnight cure
- Smith’s Epoxy U100 with a full sand broadcast – Cures in 4-5 hours at 72°F
- Smith’s Epoxy FC125 with a full sand broadcast – Cures in 2 1/2-3 hours at 72°F

Highly absorbent substrates may double priming. See individual product data sheets for more in-depth details.

**Sanding & Priming Wooden Substrates** – Abrade the surface, both new or existing, of approved wooden substrates using an appropriate wood floor sander to clean as well as remove existing sealers, paints, wax, etc. until the wood surface is thoroughly clean and absorbent. Vacuum the entire surface as well as the joints between boards to remove all sanding dust and debris. Skim coat the joint seams as well as any holes using Smith’s Epoxy GEL150 or Smith’s Poly JF to seal off voids than could potentially allow liquid to flow through during the application of Smith’s Poly-FLEX. Once the joints are filled and hard, prime the wood substrate with:

- Smith’s Epoxy WB – Overnight cure
- Smith’s Epoxy U100 with a full sand broadcast – Cures in 4-5 hours at 72°F
- Smith’s Epoxy FC125 with a full sand broadcast – Cures in 2 1/2-3 hours at 72°F

*DO NOT INSTALL Poly-FLEX over oil contaminated, dry-rotten, insect damaged or unsound substrates*
2-COMPONENT, MOISTURE TOLERANT SEMI-RIGID POLYURETHANE FLOWABLE RESURFACER

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.

Full Kit Mixing – When mixing an entire kit of Smith’s Poly-FLEX, premix the Part A using a low speed drill (≤450 RPM) with a an appropriate paint mixing paddle attached then pour the contents of Part B into the Part A container and continue to mix for 2-3 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 Pack to an entire kit of Smith’s Poly-FLEX while mixing Parts A and B.

Parts by Volume Mixing Ratio 5 Parts A to 1 Part B

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 2-3 minutes using a paint mixing paddle attached to a low speed drill (less than 460 RPM) ensuring that the sides and bottom of the mixing vessel have been thoroughly mixed as well as the center of the container.

To tint while volume mixing, add up to 5% - 10% by volume of Smith’s ISC Industrial Solid Color Pack to the mixed Smith’s Poly-FLEX while mixing Parts A and B.

(i.e. 1 gallon of Smith’s Poly-FLEX accepts up to 12.8 ounces of Smith’s ISC colorant)

APPLICATION: Once mixed, immediately pour out in a straight bead onto the area to be resurfaced. Spread with an appropriate gauge/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 and continue spread while walking in the mixture with spiked/cleated shoes. Break the surface tension and bubbles using a Magic Trowel attached to an extension pole immediately following the gauging step. Once the surface tension is relieved, lightly roll the porcupine roller around the surface to break any trapped air bubbles.

Ideally, the mixing, delivery and pouring of mixed Smith’s Poly-FLEX, Gauging, Smoothly and Porcupine roller steps should each have a single, dedicated person performing these activities. Larger projects with multiple batches being mixed concurrently will require more laborers.

NOTE: Do NOT Mix more Smith’s Poly-FLEX than can be mixed, placed, finished and tied into with the next batch within a 15 minute window at 72°F and 50% Humidity. Higher temperatures will reduce this time frame.

COVERAGE: “See chart on page 1 of this document.

CLEAN-UP: Cleaning of wet tools, either mixed/uncured or unmixed, Smith’s Poly-FLEX may be cleaned up using a solvent such as Acetone, MEK or Xylene. Once the 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.