



# SYSTEM APPLICATION GUIDE

## EPOXY THIN-MIL (3-COAT SYSTEM)

AG-ETM-030520

These instructions are not intended to show product recommendations for specific service. They are issued as an aid in determining correct surface preparation, mixing instructions and application procedure. These instructions should be followed closely to obtain the maximum service from the product.

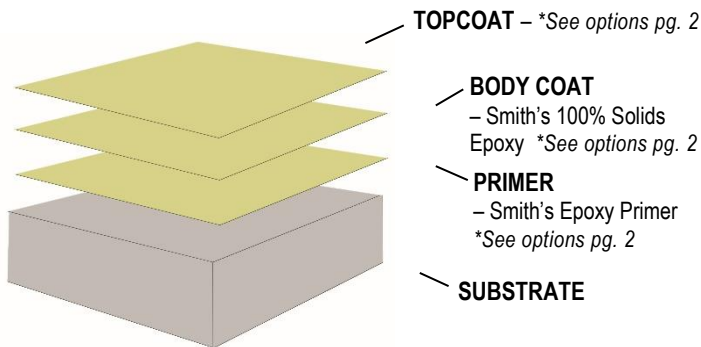
### DESCRIPTION:

Smith's Epoxy Thin-mil, Solid Color or Clear System is a 3 coat seamless floor coating system ideal for interior commercial, retail, institutional and residential applications. Thin-mil (3-Coat) System is typically installed between 15-30 mils making it ideal for Aviation Hangars (Military or Executive), Warehouses, Showrooms, Mechanical Rooms, and more.

### HIGHLIGHTS:

- Meets requirements for Unified Facilities Guide Specification 09 67 23.15 for typical 3 coat, thin-mil floor coating systems for aircraft hangars
- Resistant to Hot Tire Pick-up
- Good Stain and Chemical Resistance
- Clear or Solid Color – 24 ISC Standard Solid Colors available separately – Custom color matching available at additional cost
- Economical
- Low VOC's – Available in all regions

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**AREA PREPARATION:** Be sure to mask or cover all areas that are not intended to be coated; including, but not limited to; door frames, doors, walls and windows.

### NECESSARY TOOLS and EQUIPMENT:

- Plastic Sheeting or Ram Board to cover floor for mix station
- Jiffy mixing paddle
- Low speed 1/2" drill (Variable Speed 650 rpm or less)
- 5 gallon Plastic Mixing Buckets
- 18" wide, Premium, Non-Shed 3/8" Nap Paint Roller Covers
- 18" wide, non-metallic Paint Roller Frames
- Multiple Extension Poles
- Spiked shoes or Soccer Cleats
- Flat Window Squeegee or Magic Trowel (optional)
- V-Notched Squeegee for primer and body coats (optional)
- Wide Boy Paint Tray (for topcoat Dip & Roll application)
- Cleaning Solvent (Acetone, MEK, Xylene)

**NOTE:** The mix station and all application equipment should be ready for immediate use prior to mixing any product.

**SURFACE PREPARATION:** The surface preparation is the *most important phase of a success floor coating application*. The more detail and time dedicated to preparation will dramatically affect the appearance as well as the durability of the finished floor. Proper floor preparation maximizes the product longevity, minimizes potential failures and creates the best environment for an aesthetically pleasing installation.

- 1) Allow new concrete to cure for at least 28 days to obtain ideal design strength to allow for proper preparation\* (*\*Minimum 28 day cure per 1" thickness for optimal moisture content*). Coatings applied to a damp or incompletely cured concrete substrate may loss of adhesion or develop undesirable surface irregularities. Moisture Vapor Testing is always recommended when coating directly over concrete.  
*\* For more details, click on either [Epoxy MAC100](#) or [Epoxy MAC125](#)*
- 2) Concrete Surface Profile - CSP 2 to CSP 4 must be achieved via mechanical grinding with a 30 (or less) metal bonded diamonds or shot-blasting. If water is introduced to the intended application area, allow substrate to fully dry. Please refer to ICRI Guideline 310.2R2013 for more in-depth preparation details and recommendations.
- 3) Remove paint, adhesives and loose particulates from the intended application surface.

**CONTAMINANTS:** 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. Core sample Petrographic Analysis is the best method for testing of concrete for contaminate type and depth as well as for documenting and determining if other risks exist prior to proceeding with quoting and application of a flooring system. It is the contractors' responsibility to determine the substrate suitability and the course of action for remediation. Smith Paints is a product manufacturer, NOT a testing or analysis service but may provide testing lab references upon request. When in doubt, hire a third party inspector with appropriate certifications and credentials.

Delamination and/or breakdown due to the following causes can be determined via Petrography:

- [AAR \(Alkali Aggregate Reaction\)](#)
  - [ACR \(Alkali-Carbonate Reaction\)](#)
  - [ASR \(Alkali-Silica Reaction\)](#)
- Hydrostatic Pressure
- Near Surface ASR (may occur in certain environments which have been topically treated with Sodium Silicates or Potassium Metasilicates)
- Substrate contamination (i.e. Oils, Solvents, PERT, PCB's, Silicone, etc.)

**CHEMICAL CONTAMINATION:** Chemical contamination should be determined and may require additional testing. Once the type of contaminant is determined, contact Smith Paint Products for recommendations while following local regulations regarding contaminant and disposal.



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**OIL CONTAMINATION:** [Smith's Oil Clean](#) may be used to remove oils, such as petroleum, synthetic, and food oils, from concrete & other mineral based substrates prior to mechanical preparation.

**SILICATE CONTAMINATION:** Substrates which may have been previously treated with silicates (Potassium or Sodium Silicates) such as polished or burnished concrete as well as certain surface hardeners such as Ashford Formula or similar may skew moisture testing results.

A good indication of potential silicate contamination may be seen during traditional moisture testing with abnormally high pH (above 12 to 14 pH) but relatively low CaCl reading (less than 6 lbs.) and RH readings above 85%.

Concrete contaminated with silicate densifiers/hardeners of these types must be mechanically prepared followed by cleaning [Smith's Green Clean Pro](#) 24 hours prior to moisture vapor and pH testing in order to obtain accurate readings, otherwise, all testing and subsequent moisture vapor emission warranties are null and void.

**MIXING INSTRUCTIONS:** Follow mixing instructions on pail or see individual product data sheets for more details.

**NOTE:** Allowing mixed epoxy to remain in a large mass, such as a container or 5 gallon pail, for more than 5 minutes will significantly decrease pot life and should be poured out as soon as possible to obtain the maximum working time (up to 35 minute pot life at 72°F / 50% RH). Higher temperatures and humidity will reduce pot life.

**\*Substrates exposed to sunlight during installation will reduce working time in that area of the floor**

**\*\*DO NOT MIX AT HIGH SPEEDS** to avoid air and moisture entrapment

**APPLICATION METHOD:** Smith's Epoxy products may be applied via brush, roller and/or Notched Squeegee, Window Squeegee or Magic Trowel then back rolled.

**ROLLER APPLICATION:** Use a 3/8 inch non-shed solvent resistant roller cover.

**BRUSH APPLICATION:** Utilize traditional bristle brush application for corners and edges.

**JOINTS:** Cut all joints open with a Diamond cutting blade and fill with an appropriate semi-rigid joint filler, such as [Smith's Poly JF](#), prior to priming the substrate. As an alternative, [Smith's Epoxy MAC125](#) may be mixed with silica fume (Cab-O-Sil or similar) to make a paste for filling joints and patching voids prior to priming.


Please contact Smith Paints for more recommendations for crack repairs, joint wall rebuilding, patching & repairs, etc.

**INSTALLATION:** Cure times based on 72°F / 40% RH


- PRIMER** – Apply epoxy primer (see below options) at a rate of 5 to 7 mils ≈ 225 to 320 sq.ft. per gallon\*. Allow to cure:
  - [Epoxy U100](#) Regular Cure ≈ 4 to 5 hours
  - [Epoxy FC125](#) Fast Cure ≈ 2 to 3 hours
  - Epoxy FW38 Waterborne Fast Cure ≈ ±3 hours
  - [Epoxy MAC100](#) Slow Cure MVT ≈ minimum overnight cure
  - [Epoxy MAC125](#) Oil Stop Fast Cure ≈ 2 to 3 hours
- BODY COAT** – Apply body coat of 100% Solids Epoxy (see below options) at a rate of 8 to 20 mils ≈ 80 to 200 sq.ft.\* per gallon pouring out in ribbons then spread with a squeegee followed immediately by back rolling. Allow to cure:
  - [Epoxy U100](#) Regular Cure ≈ 4 to 5 hours
  - [Epoxy FC125](#) Fast Cure ≈ 2 to 3 hours
- DEGLOSS** – Scuff cured epoxy surface removing any surface defects (i.e. bugs, roller lint, airborne particulate, etc.) in the films surface, vacuum thoroughly then solvent wipe clean with Acetone and Microfiber.  
\*\*This step is critical for the aesthetics of gloss finish Thin-mil systems
- TOPCOAT** – A variety of topcoats are available depending on the desired aesthetics, cure rate / return-to-service, sheen, and chemical exposure anticipated:
  - [Smith's Poly-WB/G](#) (Gloss) or [Poly-WB/LS](#) (Low Sheen)
  - [Smith's MCU-60](#) (Gloss) or with 2550 Low Sheen additive
  - [Smith's Hi-Wear 90S](#) (Low Sheen, Regular Cure, Low Odor, High Traffic)
  - [Smith's Poly 2K-90](#) (High Gloss, Regular Cure, Low Odor, CRU)

\* Theoretical / Approximate Wet Mil & Coverage affected by surface texture & porosity

### APPLICATION TEMPERATURES:

	Material	Surface	Ambient	Humidity
<b>Best</b> (ideal)	60° to 80°F	65° to 80°F	65° to 85°F	10 to 60%
<b>Minimum</b>	50°F	50°F	50°F	0%
<b>Maximum</b>	90°F	85°F	95°F	70%

- DO NOT APPLY during direct sun exposure or if that can occur during cure  
 - High Humidity will decrease pot life  
 - USE Smith's Epoxy FC125 for Cooler Temperature (between 45°F to 65°F) installations to achieve similar cure rates as Smith's Epoxy U100 (70°F to 85°F)

	Material	Surface	Ambient	Humidity
<b>*Best</b> (ideal)	55° to 60°F	50° to 60°F	50° to 72°F	10 to 60%
<b>*Minimum</b>	45°F	45°F	45°F	0%
<b>*Maximum</b>	65°F	65°F	75°F	80%

\* Above for similar cure rates as Epoxy U100 at normal conditions

**RECOATING:** If recoating after 24 hours has elapsed, degloss previous layer via a black janitor pad, 100 to 120 grit sandpaper or sanding screen or 150 grit metal bond diamonds. Sanding is critical for the aesthetics of gloss finish Thin-mil systems





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**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.

**MAINTENANCE:** The coating system must be allowed to cure for no less than one week before using any mechanical cleaning equipment on the surface and no less than 24 hours before neutral cleaner or water exposure. This includes auto-scrubbers, swing buffers, sweepers, etc. Only dust and wet mopping may occur the first week.

*\*See more detailed maintenance instructions in the product data sheet for the specific topcoat used.*

Dust mopping, removal of debris and regular cleaning is crucial to maintaining the aesthetics of the coating and obtaining the maximum life span of the floor coating system. Cleaning cannot occur too often and inefficient cleaning will cause the floor to wear out prematurely and possibly stain or discolor depending on what comes in contact with the floor. Spills should be removed quickly. Avoid the use of Polypropylene or abrasive bristle (Tynex®) brushes as these brushes will cause the development of scratch patterns and lessen the sheen.

To maximum your investment with proper floor care and maintenance, remove all particles that may scratch and/or dull the floor coating using the least aggressive method necessary to clean the floor.

It is good practice to develop a floor maintenance schedule to be performed at the end of each shift and a set day per week or month for heavy cleaning:

- Daily = Sweep and dust mop or water only mopping/auto-scrubbing; spot clean spills and oils
- Weekly or Monthly = Scrubbed once per week or month depending on the amount and type of soils present

Health Department or DEA regulations may necessitate more frequent and stringent cleaning practices as will areas more prone to oils, inks, chemicals, etc. on the floor surface.

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**DETERGENT:** Always use the least aggressive detergent necessary to remove the residue. [Smith's Neutral Clean](#), or similar, may be used for general purpose cleaning. Use [Smith's Oil Clean](#), or similar degreaser, for more degreasing and heavy duty weekly or monthly cleaning.

*\*See more in-depth details regarding detergents in the product data sheet for the specific topcoat used.*

### CAUTION:

- Do not drag or drop heavy objects across any floor, including coatings as scratching, gouging or chipping may occur to the concrete or the coating itself. This includes the tip of the forks on a forklift, nails protruding from a pallets, etc.
- Avoid spinning tires on the surface of a coated floor. The heat created from the friction of a spinning tire will quickly soften the coating causing permanent damage to the finish.
- Should a gouge, chip or scratch occur, touch-up the damaged areas immediately to avoid chemical or water intrusion to the concrete which could create additional damage. A thin layer of clear nail polish to the damaged area will provide some minimal protection until the area can be properly repaired.
- Rubber tires are prone to plasticizer migration, especially aviation tires and high performance car tires. Plasticizer will stain coating and commercial flooring leaving an amber, yellow-like stain that can be permanent. This can be more noticeable where aircraft or vehicles are stationary for longer period of time, more so in non-climate controlled environments such as aircraft hangar with lighter colored floors. To avoid plasticizer staining, use a piece of Plexiglas® or LEXAN® panels, cut a few inches in diameter larger than the tires that will rest on the panels, between the floor and the contact point of the tire when storing rubber tired vehicles on any floor, including floor coating systems. Some tire stains can be removed is cleaned before a set-in stain occurs using a d-Limonene based degreaser and some mild agitation using an orbital, low speed floor machine.

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**LIMITED LIABILITY:** Liability is limited to replacement of defectively manufactured product with same type and cost of the original 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. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SMITH PAINT PRODUCTS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SHOULD YOU NOT AGREE WITH ANY OF THE ABOVE TERMS, DO NOT PURCHASE THE PRODUCT(S). Should a product defect be suspected at the time of application, cease use of the product immediately and notify Smith Paint Products for investigation otherwise 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 allow with the invoice that matches said quantity. Defects determined after installation must be reported to Smith Paint Products within 10 business days of discovery.

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