

Smith's

METALLIC & LUSTER Mica Blended Pigments for Metallic Floor Coatings

System Application Guide

DECORATIVE MICA PIGMENTED EPOXY WITH TOPCOAT

PDS-EML-110320

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.

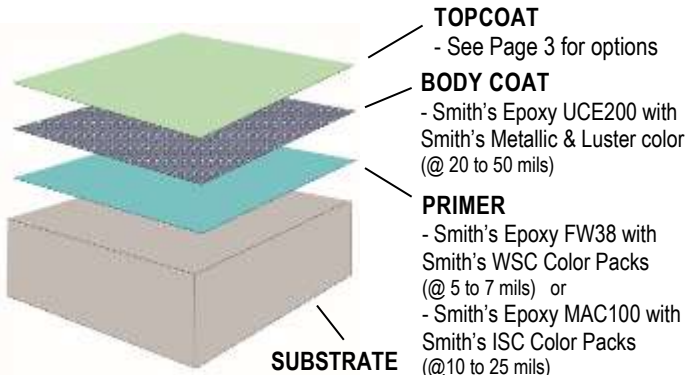
DESCRIPTION:

Smith's Metallic & Luster Epoxy System is a seamless decorative floor coating system with Mica pigments which allows the artisan to make a wide array of artistic capabilities to create color mottling and veining with the epoxy base to yield a one-of-a-kind floor ideal for commercial, retail, institutional and residential interior flooring applications.

HIGHLIGHTS:

- One-of-a-kind
- Resistant to Hot Tire Pick-up
- Good Stain and Chemical Resistance
- Decorative
- Economical
- Low VOC's – Available in all regions

METALLIC & LUSTER EPOXY SYSTEM



TOPCOAT

- See Page 3 for options

BODY COAT

- Smith's Epoxy UCE200 with Smith's Metallic & Luster color (@ 20 to 50 mils)

PRIMER

- Smith's Epoxy FW38 with Smith's WSC Color Packs (@ 5 to 7 mils) or
- Smith's Epoxy MAC100 with Smith's ISC Color Packs (@ 10 to 25 mils)

SUBSTRATE

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 ½" drill (Variable Speed ≤450 rpm)
- 5 gallon Plastic Mixing Buckets
- 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)
- Sprayer for Solvent mottling (optional)
- Cleaning Solvent (Acetone, Xylene)
- Painters Tape
- Rags
- Plastic Measuring Pails

NOTE: Mix station & all application equipment should be ready for immediate use prior to mixing any product. Higher temperatures & humidity will shorten pot-life.

TEMPERATURE & HUMIDITY: Substrate temperature & materials must be maintained between 50°F (10°C) to 90°F (32°C) with less than 80% Ambient Humidity for 24 hours prior to & 24 hours after installation.

INSPECT THE SUBSTRATE: Ensure the substrate is structurally sound & solid as well as free of any contaminants that may act as a bond breaker, such as oil, paint, densifier/sealers, dirt, debris, adhesives, loose/peeling existing coatings, curing compounds, wax, silicone, etc.

CONTAMINATION OF SUBSTRATE: Concrete is porous & 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 while following local regulations regarding contaminant & disposal.

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. Wood substrates contaminated with oil may require removal & replacement of the oil contaminated area with new wood to ensure proper adhesion.

JOINTS, CRACKS & PATCHING: 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. Cut all joints and moving cracks 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. Best practice is to honor the joint at the surface after the coating system is applied then fill will an appropriate joint filler can lessen joint telegraphing. Static joints may allow the coating system to bridge over [Smith's Poly JF](#) but is NOT recommended to install a floor coating system over caulking, silicone, cement patching compounds as well as Polyurea & traditional Polyurethane flexible joint fillers.

ACI recommends allowing a concrete slab to cure for a minimum of 60 to 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 to 10 days after filling with an appropriate semi-rigid joint filler, such as [Smith's Poly JF](#), ideally longer if possible.

Patching of chips, gouges, etc. may be repaired with a variety of different, compatible coating materials, to include [Smith's Epoxy GEL150](#), [Smith's Epoxy U100](#) or [Smith's Epoxy FC125](#) mixed with Silica Fume, [Smith's Poly PCF-45](#) or [Smith's 4in1 Overlay](#) (Smith's 4in1 Overlay must cured for 2 to 3 days prior to coating).

Ensure patching products are hard enough to walk on without the risk of damage before proceeding with subsequent sanding & coatings. Should the surface of the concrete require extensive resurfacing or repairs, please contact Smith Paints for more recommendations based on the site conditions.



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SUBSTRATE PREPARATION: Substrate preparation is the ***MOST IMPORTANT*** phase of the application. Proper floor preparation results in the product's longevity, minimizes potential failures & creates the best environment for an aesthetically pleasing installation. In short, the more detail & time allotted to this phase of the project will dramatically affect the appearance as well as the durability & longevity of the finished floor.

- 1) Allow new concrete to cure for at least 28 days to obtain appropriate design strength
 - A hazy appearance, blistering or loss of adhesion may occur when applied to damp or incompletely cured concrete. Moisture Vapor Testing is always recommended when coating directly over concrete.
*See "Moisture /Alkalinity" section on page 2 for more details
- 2) Remove all contaminants (i.e. paint, adhesives, loose particulates, etc.) from the intended application surface
- 3) Mechanically prepare to a Concrete Surface Profile - CSP 2 to CSP 4 via mechanical grinding with a 40 grit (or more aggressive) metal bond diamonds or shot-blasting. If water is introduced to the intended application area, allow substrate to fully dry. **DO NOT USE RESIN BOND DIAMONDS FOR GRINDING.** Properly prepared concrete substrate will be uniformly "white" in color & readily absorb liquids within 60 seconds.
- 4) Key in all termination points by saw cutting 1/8th inch wide by 1/8th inch deep lines at doorways, drain, etc.
- 5) For a seamless appearance, all joints must be filled with an appropriate semi-rigid joint filler (i.e. [Smith's Poly JF](#)) & finished flush to the concrete surface
- 6) Repair all chips, cracks, gouges, divots & other floor irregularities with [Smith's PCF-45](#) or similar then grind smooth & flush to surrounding surface.

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.

MOISTURE / ALKALINITY: *CHECK FOR MOISTURE*****

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

In the event a moisture vapor suppression primer is determined to be necessary, [Smith's Epoxy MAC100](#) or [Smith's Epoxy MAC125](#), in conjunction with proper testing & mechanical preparation, will reduce the moisture vapor emission rate to a level within the tolerance of subsequent coatings & traditional floor covering needs. [Smith's Poly-FLEX](#) and [Smith's CPR-SL](#) may be used for moisture vapor transmissions no to exceed 18 lbs. or 85% Relative Humidity.

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 & conclusive.

Never use silicate based products as a means of moisture remediation as these products may crystallize in the pores of the concrete surface and impede on the adhesion of the coating system and are highly discouraged for use under any circumstance. This includes products containing Potassium Silicate, such as Smith's Base Boost or Sodium Silicate based products.

The absence of an effective moisture vapor barrier may create an environment for moisture vapor transmission as well as high levels of alkalinity in concrete slabs. Blistering, delamination, flaking, etc. may occur in these environments when a non-breathable coating is applied over the surface of the concrete. Moisture testing is extremely important has part of the investigation process prior to quoting a project and should occur following the most current industry accepting testing methods, such as, a Calcium Chloride test (ASTM F-1869) and/or Relative Humidity probe (ASTM 2170). It is the contractor's responsibility to determine the moisture vapor transmission and pH of a floor. It is the contractor's responsibility to determine whether or not a substrate is sound, solid and suitable.

Smith Paint Products is strictly a product manufacturer and 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.

PRIMING: Priming must occur to seal off the porosity of the substrate to avoid air bubbles in the body coat. Air bubbles in the body coat are a direct result of insufficient priming due to excessive porosity.



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MIXING INSTRUCTIONS - Metallic & Luster Body Coat:

See individual product data sheets for detailed instructions on the package label or click product name hyperlinks throughout this document.

Do NOT Stick Mix Metallic & Luster pigments with Epoxy, mechanical mixing with a drill is required. **DO NOT MIX AT HIGH SPEEDS** to avoid air bubbles and moisture entrapment.

Mixing Ratio for Metallic & Luster body coat:

Add 1 unit of Smith's Metallic & Luster per 3 gallon kit of Smith's Epoxy UCE200. If part mixing by volume, Smith's Epoxy UCE200 is a 2 Part A to 1 Part B by volume mixture adding roughly 100 grams of Smith's Metallic & Luster pigment per 1 gallon of mixed Epoxy into the Part A. For ease of application, Metallic & Luster pigment can be pre-mixed mechanically with a clean mixing paddle attached to a low speed drill into the appropriate quantity of Part A Epoxy UCE200 prior to application to allow for easier mixing during application, just remember to remix or stir the Part A prior to use as color settling will occur.

When mixing full 3 gallon kits of Smith's Epoxy UCE200, mix 1 unit of Smith's Metallic & Luster pigment with the Part A of Smith's Epoxy UCE200 for 2 minutes or to a lump free consistency then combine the Part B of Smith's Epoxy UCE200 into the Part A pail while continuing to mix for an additional 2 to 3 minutes at low speed (less than 450 rpm)

When part mixing by volume, measure the amounts using measuring cups then pour into a clean 5 gallon plastic pail to mechanically mix counter-clockwise for one full minute using a low speed drill (≤ 450 rpm) with a paint mixing paddle ensuring both the bottom and sides of the mixing container have been thoroughly blended. For best practice, pour the mixed epoxy into a separate clean pail after mixing prior to transportation and placed on the desired floor area to reduce the risk of unmixed powder pockets or unmixed resin from the mixing vessel being poured onto the floor.

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

NOTE: Mechanical agitation is recommended

APPLICATION METHOD: Due to the artistic nature of metallic floor coatings, the placement and finishing techniques of the metallic body coat can range widely. In general, mottling of the pigment best occurs when applying the body coat between 25 to 50 mils (32 to 60 sq.ft. per mixed gallon of Epoxy UCE200) over a flat, smooth primed surface using whatever application tool the contractor prefers. If using solvent to increase the mottling effects and break the surface tension, Denatured Alcohol is the preferred solvent to be sprayed over the epoxy while wet.

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

- 1) **PRIMER** - Apply a thin coat of pigmented primer (Black or White recommended) at a rate of 5 to 7 mils \approx 225 to 320 sq.ft. per gallon. Options listed below with typical cure rate prior to next layer:

STANDARD:

- Smith's Epoxy FW38 with Smith's WSC Color Pack =
@ 72°F / 50% Humidity = 3 hours (min.) to 24 hours (max.)

ALTERNATIVES:

- Smith's Epoxy U100 with Smith's ISC Color Pack =
@ 72°F / 50% Humidity = 4 hours (min.) to 24 hours (max.)
- Smith's Epoxy UCE200 with Smith's ISC Color Pack =
@ 72°F / 50% Humidity = 9 hours (min.) to 24 hours (max.)
- Smith's Epoxy FC125 with Smith's ISC Color Pack =
@ 72°F / 50% Humidity = 2 ½ hours (min.) to 12 hours (max.)

MOISTURE VAPOR/ALKALINITY CONTROL PRIMER –

Apply Smith's Epoxy MAC100 (Regular Cure) or Smith's Epoxy MAC125 (Fast Cure) in 2 coats with Smith's ISC Color Pack (Black or White recommended) added to the second coat.

FIRST COAT – Clear = 265 to 325 sq.ft. per kit
(12 to 15 mils = 106 to 133 sq.ft. per mixed gallon yield)

SECOND COAT – Pigmented = 400 sq.ft. per kit
(10 mils = 160 sq.ft. per mixed gallon yield)

Cure Time between Coats / Recoat with next layer:

- Smith's Epoxy MAC100 (Regular Cure)
@ 72°F / 50% Humidity = 12 hours (min.) to 24 hours (max.)
- Smith's Epoxy MAC125 (Fast Cure & Oil Stop Primer)
@ 72°F / 50% Humidity = 2 hours (min.) to 12 hours (max.)

- 2) **METALLIC BODY COAT** - Apply a body coat of Smith's Epoxy U100 with Metallic & Luster color pack at 25 to 50 mils \approx 32 to 64 sq.ft. per gallon then spread and mottle to achieve desired appearance. A fine mist of Denatured Alcohol may be used at this time to aid in smoothing

Creating Ringlets (Optional), allow the epoxy to settle & mottle for roughly 30 minutes (@ 72°F substrate surface temperature) from the time of the first mix (higher temperatures will reduce this time). Fog a fine mist of Denatured Alcohol into the air while walking through the fresh Metallic & Luster Epoxy to allow the ringlets to form.

Allow the epoxy to cure overnight (@ 72° F / 50% humidity)

Sand the surface of the cured epoxy the following day to remove any airborne particles which fell into the wet film during the cure phase and to degloss for adhesion, especially important for a gloss topcoat finish.



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3) **TOPCOAT** – A variety of topcoats are available depending on the desired sheen, aesthetics, cure rate/return-to-service and traffic exposure anticipated:

- [Smith's Poly-WB/G](#) (Gloss, 50% Solids Polyurethane)
- [Smith's Poly-WB/L](#) (Low Sheen, 50% Solids Polyurethane)
- [Smith's MCU-60](#) (Gloss, 60% Solids MCU)
- [Smith's Poly 2K-90](#) (Gloss, 90% Solids CRU)
- [Smith's Hi-Wear 90S](#) (Low Sheen, High Traffic 90% Solids CRU)

Click on hyperlink for information related to individual topcoat product above regarding working time, cure rate for return-to-service, application instructions, etc.

APPLICATION TEMPERATURES:

	Material	Surface	Ambient	Humidity
Best	60°-80°F	65°-80°F	65°-85°F	10-60%
Minimum	55°F	55°F	50°F	10%
Maximum	90°F	90°F	95°F	80%

- Do not apply when substrate has direct sun exposure during application as bubbles will occur in the film

- High temperatures will reduce working time.

SLIP RESISTANCE: Smith Paint Products recommends the use of angular slip-resistant aggregate in all coatings exposed to wet, oily or greasy conditions as well as any condition where increased traction may be necessary. It is the contractor & end users' responsibility to determine the appropriate traction & footwear necessary for the conditions as well as setting performance parameters prior to beginning the application as well as determining said 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 prior to system selection and installation.

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 48 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.*

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

DETERGENT: Always use the least aggressive detergent necessary to remove the residue. [Smith's Neutral Detergent](#), 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.

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 a coated floor surface as the heat created from the friction of a spinning tire will quickly soften the coating causing permanent damage.

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 if 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 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 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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