SHOP FLOOR – EPOXY, SINGLE BROADCAST
1/16” (60 MIL AVE.) SINGLE BROADCAST EPOXY SYSTEM

DESCRIPTION:
Smith’s Shop Floor system is a seamless 1/16” finished thickness seamless floor coating system with optional cove which can be utilized with different resinous product matrix’ to suspend the sand aggregate broadcast. This system application guide refers to using Smith’s Epoxy U100 or Smith’s Epoxy FC125 as the body coats to receive the broadcast, although other products may be used in different situations or when faster curing may be necessary.

Varies textures may be achieved depending on how smooth or textured of a surface is desired.

RECOMMENDED USES:
• Kennels & Veterinary environments
• Automotive Service & Wash Bays
• Car Washes
• Commercial Kitchens
• Loading Docks
• Mechanical Rooms
• Food & Beverage – Canning, Bottling, & Distribution
• Educational Environments – Laboratories, Locker Rooms, Restrooms, Pool Decks & more
• Medical/Pharmaceutical – Laboratories, Locker Rooms, Water Therapy rooms, Restrooms, Corridors and more

HIGHLIGHTS:
• Durable & Abrasion Resistant
• Decorative
• Seamless & cove optional
• Easy to clean
• High Chemical Resistant to most acids, bases, fuels, solvents, & alcohols
• Low Odor & Low VOC
  o Complies with VOC regulations for industrial maintenance coatings in the OTC & SCAQMD
  o FDA Title 21 subparagraph (b) CFR 174.5 – indirect food contact
• Overnight return to service
• Available in all standard Smith solid industrial colors

SYSTEM APPLICATION GUIDE INSTRUCTIONS

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

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Epoxy U100</th>
<th>Epoxy FC125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pot Life</td>
<td>25 minutes</td>
<td>12 minutes</td>
</tr>
<tr>
<td>Working Time</td>
<td>35 minutes</td>
<td>10-15 minutes</td>
</tr>
<tr>
<td>Tack Free</td>
<td>4 – 5 hours</td>
<td>2 hours</td>
</tr>
<tr>
<td>Recoat (Applied to Epoxy FC125)</td>
<td>4 – 24 hours</td>
<td>2½ – 24 hours</td>
</tr>
<tr>
<td>Foot Traffic</td>
<td>10 hours</td>
<td>3½ – 5 hours</td>
</tr>
<tr>
<td>Heavy Traffic</td>
<td>24 hours</td>
<td>12 – 18 hours</td>
</tr>
<tr>
<td>Full Cure</td>
<td>6 – 7 days</td>
<td>5 days</td>
</tr>
</tbody>
</table>

CURED COATING PROPERTIES (DRY FILM):

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion Resistance, mg/loss *Taber Abraser</td>
<td>ASTM D4060</td>
<td>25 mg (Epoxy U100)</td>
</tr>
<tr>
<td>Compressive Strength, psi (MPa)</td>
<td>ASTM D695</td>
<td>13,000 psi (89.7 MPa)</td>
</tr>
<tr>
<td>Flexural Strength - psi (MPa)</td>
<td>ASTM D790</td>
<td>6,500 psi (44.8 MPa)</td>
</tr>
<tr>
<td>Tensile Strength, psi (MPa)</td>
<td>ASTM D2370</td>
<td>8,586 psi (59.2 MPa)</td>
</tr>
<tr>
<td>Impact Resistance - Tested on concrete block</td>
<td>ASTM D3134</td>
<td>Pass</td>
</tr>
<tr>
<td>Shore D Hardness</td>
<td>ASTM D2240</td>
<td>85 – 90</td>
</tr>
<tr>
<td>Hardness (Pencil)</td>
<td>ASTM D3362</td>
<td>2H</td>
</tr>
<tr>
<td>VOC’s-Volatile Organic Compounds</td>
<td>ASTM D3960</td>
<td>&lt;2 g/L</td>
</tr>
<tr>
<td>Flammability</td>
<td>ASTM E648</td>
<td>Class 1 (Self Extinguishing)</td>
</tr>
<tr>
<td>Water Absorption</td>
<td>ASTM D543</td>
<td>0.2%</td>
</tr>
<tr>
<td>Adhesion to Concrete</td>
<td>ASTM D4541</td>
<td>Concrete Fails</td>
</tr>
</tbody>
</table>

*CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions Results are based on conditions at 77°F (25°C), 50% relative humidity.

APPROXIMATE COVERAGE:
Coverage will vary depending on the application thickness, floor profile and absorbency of the concrete.

<table>
<thead>
<tr>
<th>Layer</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base/Seed Coat</td>
<td>10 – 20 mils (80 – 160 sq.ft./gal)</td>
</tr>
<tr>
<td>Sand Broadcast</td>
<td>0.4 – 0.5 sq.ft. per lbs. (100 sq.ft. per 50 lbs. bag) per broadcast</td>
</tr>
<tr>
<td>Grout Coat</td>
<td>12 – 20 mils (80 – 130 sq.ft./gal)</td>
</tr>
<tr>
<td>Optional – Topcoat</td>
<td>Varies based on desired texture &amp; sheen</td>
</tr>
</tbody>
</table>
CHEMICAL RESISTANT: Refer to the product used as the final wear surface/topcoat for chemical resistance.

NECESSARY TOOLS and EQUIPMENT:
- Plastic Sheeting, Ram Board or similar to cover floor for mix station
- Painters tape
- 2” wide chip paint brushes
- 4” or 6” wide 3/8” nap trim paint rollers and frames
- Quartz blower or extra 5 gallon pails for seeding Quartz
- Paint or Jiffy mixing paddle
- Low speed ½” drill (Variable Speed 650 rpm or less)
- Gauging tool:
  - 1/16” X 1/16” V-Notch Squeegee for metering 12-15 mils
- Flat blade Squeegee for grout coat
- 5 gallon pails for mixing
- Premium, Non-Shed 3/8” Nap Paint Roller Covers
- Paint Roller Frame with Extension Pole
- Spiked shoes or Soccer Cleats
- Cleaning Solvent (Acetone, MEK, Xylene)

NOTE: The mix station and all application equipment should be ready for immediate use prior to mixing any product due to the epoxy pot life once mixed. Only mix enough epoxy to be placed within 15 minutes allowing for proceeding batches to tie into the wet edge for an additional 15 minutes at 72°F. Higher temperatures and humidity will shorten pot life.

INSPECT THE SUBSTRATE: Ensure the substrate is structurally sound, solid, and free of any bond breaking contaminants, such as oil, paint, densifiers/sealers, curing compounds, wax, silicone, etc.

CHECK FOR MOISTURE: Testing concrete moisture via both the Calcium chloride (ASTM F1869) and In-situ Relative Humidity (ASTM F2170) methods is highly recommended 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 identify other potential risks that may pose a risk for delamination, chemical attack, etc.

Results must be below 3 pounds (ASTM F1869) as well as between 8.5 to 11.5 pH and below 75% relative interior concrete humidity (ASTM F2170). Testing taking place in non-acclimated interior environment(s) will void the results. Follow the testing manufacturer’s instructions precisely or visit www.astm.org, see ASTM F1869 or F2170, to purchase the test methods.

Smith’s Epoxy MAC100 or Smith’s Epoxy MAC125, in conjunction with proper testing and mechanical preparation, will reduce the moisture vapor emission rate to an acceptable level within the tolerance of subsequent coatings when testing determines osmotic moisture vapor levels up to 25 lbs. and between 8.5 to 14 pH (ASTM F1869) and up to 100% RH (ASTM F2170). NEVER USE SILICATES FOR MOISTURE VAPOR REMEDIATION.

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.

Substrate Preparation:

GENERAL CLEANING: Detergent scrub with Smith’s Neutral Clean, or similar, and rinse with clean, potable water to remove surface dirt, light surface grease/oil and contaminants prior to mechanical preparation.

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.

OIL CONTAMINATION: Smith’s Oil Clean may be used to remove oils, such as petroleum, synthetic and food oils, from the surface of the concrete prior to mechanical preparation. Wood substrates contaminated with oil may require removal and replacement of the oil contaminated area with new wood to ensure proper adhesion.

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.

SILICATE REMEDIATION: Smith’s Green Clean Pro buffered etching compound may be used as a remediation method for removing densifiers/silicates only AFTER one of the following mechanical preparation methods. A uniform sandpaper like finish must be achieved with no patterning or dis-similar appearance. Shiny areas will need further treatment. Ensure thorough rinsing has occurred.

NOTE:
- DO NOT USE MURIATIC/HYDROCLORIC ACID TO PREPARE CONCRETE AS CHLORIDE CONTAMINATION CAN 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

TEMPERATURE and HUMIDITY: Substrate temperature and materials must be maintained between 50°F (10°C) to 85°F (29.4°C) with less than 80% Ambient Humidity for 48 hours prior to an 24 hours after installation. Do not install coatings when the Dew point is within 5° of the temperature.
MECHANICAL 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 in order to maintain long term adhesion to the substrate.

Recommended preparation methods below:

- **Diamond Grind:** Use 16 to 25 grit metal soft bond diamonds with an appropriate industrial, weighted head floor grinder to thoroughly remove the concrete surface until uniformly white.
- **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.
- **Scarry:** Sweep to remove large debris and vacuum to remove fine dust. Scarry to uniformly remove the concrete surface until white. Thoroughly vacuum all dust and debris. Ideal preparation method for weak concrete surfaces, previously coated floors, delamination, and priming. Use high pressure air and water jetting to remove loose debris and dislodging the aggregate from the epoxy then sweep up and thoroughly vacuum off the loose sand reclaiming the excess for later phases/use, if desired.

*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.

*Should verification of proper adhesion be desired or when applying Smith’s Shop Floor system 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 coating system and allowed to cure for no less than 1 month prior to performing an in-situ direct tensile bond test to determine adhesion strength values.*

**JOINTS:** Cut all joints open with a Diamond cutting blade and fill with an appropriate semi-rigid epoxy joint filler prior to priming the substrate. As Epoxy U100 is not as flexible as a moving joint, honoring of the joint at the surface after the resurfacing layer is applied then fill will an appropriate joint filler can lessen joint telegraphing.

**CRACKS & OTHER SURFACE REPAIRS:** Surface defects may be repaired prior to Smith’s Shop Floor system:

- Smith’s Epoxy SLS100 – Self Leveling Slurry (30 mils to 500 mils)
- Smith’s Epoxy HD-100 – Epoxy Mortar System for curbing, sloping, deep repairs, etc. (>1/8” to 1” thick)
- Smith’s CPR products
- Smith’s 4in1 – Polymer Modified Cement based (Requires no less than 3 days to cure prior to applying a high build coating over this product)

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

**BODY COAT:**
Mixture of Epoxy U100 or Epoxy FC125:

- 2 gallons Epoxy Parts A
- 1 gallon Epoxy Part B
- 1 unit of EC Epoxy Colorant

Mix for 2 minutes then pour mixture onto the substrate in ribbons. Immediately spread using a 1/16” x 1/16” V-Notched Squeegee to meter out the body coat then backroll with a 3/8” nap non-shed paint roller on an extension pole. While the epoxy is fresh, begin seeding in the Wedron Sand or Color Quartz to rejection until no epoxy or damp areas are seen. Continue this process until the entire area desired to be coated is finished. Allow to dry until the floor can be walked on without dislodging the aggregate from the epoxy then sweep up and thoroughly vacuum off the loose sand reclaiming the excess for later phases/use, if desired.
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**GROUT COAT:** Once all of the loose, excess aggregate has been removed from the broadcast layer, scrape off any sharp ridges using a drywall tape knife attached to an extension pole then thoroughly vacuum the entire surface twice. First in a North-South direction followed by a second pass vacuuming East-West.

Grout Coat product options include:
- Smith’s Epoxy U100 (Summer Formula/Regular Cure)
- Smith’s Epoxy FC125 (Winter Formula/Fast Cure)
- Smith’s Epoxy GEL150 (Orange Peel Texture Gloss Finish)
- Smith’s Polyaspartic 1000 Fast Cure (Solvent Based)
- Smith’s Polyaspartic 2000 Long Pot life (Solvent Based)

Ambering/Yellowing is typical of epoxy based products and will occur faster when exposed to UV light. UV Stabilizer additives only slow this process. If ambering/yellowing is not acceptable, please use one of the above Polyaspartics for grout coating or apply a pigmented UV Stable topcoat such as, Smith’s Hi-Wear 90S, over the epoxy grout coat layer as the finish topcoat.

Mix the desired product and pour out in ribbons over the broadcast layer then immediately spread with a flat squeegee. Continue mixing and spreading the grout coat keeping a wet edge between batches. Where there cleats, walk into the fresh grout coat and backroll with a 3/8” nap paint roller attached to an extension pole to finish the surface. DO NOT AGGRESSIVELY agitate while rolling to avoid air entrapment and/or bubbles in the finish.

The greater the quantity of product used to grout coat over the sand will lessen the finish texture. For a more aggressive finish, use less product.

Most aggressive/course texture – yield of 200 sq.ft. per gallon
Least aggressive/smooth texture – yield of 80 sq.ft. per gallon

**OPTIONAL LAYERS or TOPCOATS:** Allow the grout coat to cure before walking on, sanding or applying any optional proceeding layers and topcoats. Cooler temperatures and thicker applications of the grout coat will extend the cure time. Please see the individual product data sheet for more details.

If topcoating or additional layers are desired, sanding of the surface (for adhesion) within the first 24 hours after at temperatures below 85°F is not required. However, beyond 24 hours, the surface will need to be abraded using 80 grit sandpaper using an orbital Low Speed Swing Buffer to abrade the surface then cleaned prior to the next layer. If sanding, a good rule of thumb is to wait overnight to avoid damaging the fresh grout coat however, Epoxy FC125 and Polyaspartic 1000 may be sanded after a couple of hours with temperatures above 75°F. More aggressive grit screens or sandpaper may create burns, scuffs and other surface defects, especially within 12 hours after the initial installation, which topcoats and subsequent thin layers may not hide. Hard to reach areas or any depressions should be made uniformly dull using an orbital palm sander and 60 to 100 grit sandpaper. Done correctly, the surface should be uniformly dull with no scratches easily identified.

Once uniformly dull and properly abraded, vacuum the entire surface followed by either a thorough Acetone solvent tack rag wipe or use an auto-scrubber with white, soft nylon bristle brushes and a very mild neutral detergent and then a clean water rinse. Once dry, check the surface to ensure all dust has been removed before proceeding with the next layer.

**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 (7 days) 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 mop the first week. If a topcoat of Smith’s Polyaspartic was applied, wait a minimum of 3 days before using mechanical cleaning equipment.

Regular cleaning, to include dust mopping, is crucial to maintain the appearance and to achieve the appropriate longevity of any floor coating system. Cleaning cannot occur too often. Spills should be removed quickly. Avoid the use of Polypropylene or abrasive bristle (TyneX®) brushes as these are known to create scratch patterns and lower the sheen of the finish.

Proper maintenance will help to maximize your investment by removing particles that scratch and dull the appearance of a floor coating. The floor should be swept daily and scrubbed once per week or per month depending on the amount and type of soils present. Environments with oils or regulated by health departments will need a more strict cleaning regiment.

**DETERGENT:** Always use the least aggressive detergent necessary to remove the residue. Typically, coated floors may only need a detergent scrub on a weekly or monthly basis depending on the environment. Daily dust mopping or water only mopping/scrubbing is highly recommended. Environments with exposure to foods, oils, chemicals, ink, etc. should be detergent scrubbed daily, possibly enough after every shift.

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.

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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 periods of time, more so in non-climate controlled environments such as aircraft hangars 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.

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.

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