Epoxy HD-100

- Heavy Duty Mortar for Resurfacing Moderate to Severe Concrete Erosion
- Very Low VOC's and Odor
- Accepts Forklift Traffic in 24 hours
- Chemical Resistant
- Impact Resistant
- Natural with 16 color packs available
- High Abrasion Resistance - Great Wheeled Traffic durability
GENERAL DESCRIPTION: Smith's HD-100 system is a high performance, heavy duty 3 component, trowel applied, highly chemical resistant, 100% solids epoxy mortar used to resurface eroded or uneven concrete in heavy traffic, abusive environments needing a durable, new, quick return-to-service floor.

RECOMMENDED USE:
- To resurface slightly to severely eroded concrete floor from 3/16” to 1”
- Accepts heavy forklift traffic after 24 hour cure at 72°F/50% Ambient Humidity
- Typical Applications include:
  - Aviation Hangars
  - Heavy Manufacturing Floors
  - Resurfacing eroded factory aisle ways and loading docks
  - Military applications
  - Automotive Manufacturing
  - Commercial and Industrial food processing/production (non-thermal shock prone areas)
  - Laboratories

HIGHLIGHTS:
- High Impact Resistance
- Excellent rolling load resistance – Great for abusive environments with carts and forklift traffic
- Easy to clean
- High Chemical Resistance to most acids, bases, fuels, and solvents
- Stronger than concrete

STORAGE:
Indoors between 40°F - 90°F

INSTALLATION TEMPERATURE RANGE:
50°F to 90°F

COLORS:
All Standard EC Epoxy Color Packs

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion Resistance, mg/loss*</td>
<td>ASTM D4060</td>
<td>25 mg</td>
</tr>
<tr>
<td>Taber Abraser</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compressive Strength, psi (MPa)</td>
<td>ASTM D695</td>
<td>10,500 psi (72.39 MPa)</td>
</tr>
<tr>
<td>Percent Elongation</td>
<td>ASTM D1305</td>
<td>Pass</td>
</tr>
<tr>
<td>Shore D Hardness</td>
<td>ASTM D2240</td>
<td>85-90</td>
</tr>
<tr>
<td>Adhesion to Concrete</td>
<td>ASTM D4541</td>
<td>Concrete Fails</td>
</tr>
<tr>
<td>Water Absorption</td>
<td>ASTM D543</td>
<td>0.2%</td>
</tr>
<tr>
<td>Impact Resistance</td>
<td>ASTM D3134</td>
<td>Pass</td>
</tr>
<tr>
<td>-Tested on concrete block</td>
<td>ASTM D2794</td>
<td>160 in.lbs., no delamination/chipping</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. A single mixture of Smith’s Epoxy HD-100 mortar system consists of
- ¾ gallon Epoxy (Options below)
  - Smith’s Epoxy U100 (For installation temperatures between 60°F to 90°F)
  - Smith’s Epoxy FC 125 (For installation temperatures between 50°F to 65°F)
  - Smith’s Epoxy GEL150 (For 1/8” to 3/16” thick with 45 lbs. aggregate volume)
- 45 to 56.5 lbs. of Fairmont Santrol’s Black Lab ¼” Epoxy Trowel Aggregate Blend (4 to 5 parts aggregate to 1 part by volume of mixed epoxy)

<table>
<thead>
<tr>
<th>Mil Thickness (inches)</th>
<th>Single Batch Yield (5 Parts Aggregate to 1 Part Epoxy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>187.5 mils (3/16”)</td>
<td>35 sq.ft.</td>
</tr>
<tr>
<td>250 mils (1/4”)</td>
<td>28 sq.ft.</td>
</tr>
<tr>
<td>375 mils (3/8”)</td>
<td>21 sq.ft.</td>
</tr>
<tr>
<td>500 mils (1/2”)</td>
<td>14 sq.ft.</td>
</tr>
</tbody>
</table>
CHEMICAL RESISTANT: Refer to the product used as the final wear surface/topcoat for chemical resistance.

LIMITATIONS:
- Not UV Stable - Will amber over time which will be more noticeable with lighter colors.

INSPECT THE SUBSTRATE: Ensure the concrete is structurally sound and solid as well as free of any contaminants that may act as a bond breaker, such as oil, paint, densifier/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 internal 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 regarding contaminant and disposal.

TEMPERATURE and HUMIDITY: Substrate temperature and materials must be maintained between 50°F (4°C) and 90°F (32°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.

NECESSARY TOOLS and EQUIPMENT:
- Plastic Sheet or Ram Board to cover floor for mix station
- 3-Blade or Bird Cage flat ring bottom style mixing paddle
- Low speed ½” drill (Variable Speed 650 rpm or less)
- 5 gallon Mixing Buckets or Portable Mix Stations
- Stainless steel 3” X 12” Trowel or Longer (Rounded corners)
- Premium, Non-Shed 3/8” Nap Paint Roller Covers
- 18” wide 1/16” V-Notch Squeegee
- 18” wide Paint Roller Frame with Extension Pole
- Epoxy power trowel with combination blades
- Spiked shoes or Cleats
- Screed box
- Cleaning Solvent (Acetone, MEK, Xylene)
- 18” – 24” wide Flat Rubber Squeegee
- Solvent Resistant Trigger Spray Bottle
- Denatured Alcohol
- Acetone or Xylene for cleaning tools
- Stucco Tape or Duct Tape
- Angle Grinder with 1/8” diamond cutting wheel

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.

SUBSTRATE CLEANING: Prior to mechanical preparation, 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. Heavy grease and oil should be removed using Smith’s Oil Clean followed by a thorough clean, potable water rinse using an auto scrubber or orbital floor machine utilizing soft, nylon bristle brushes. Abrasive pads are not effective at agitating low lying areas such as gouges and are not recommended for cleaning or degreasing rough textured surfaces.

If a densifier or dissipative curing compound is believed to have been present, use Smith’s Green Clean followed by a thorough clean, potable water rinse or a zero degree rotating nozzle attached to a pressure washer to achieve 12,000 work units (water pressure x pressure washer psi = work units).
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, 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.

Recommended preparation methods below:

- **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.

- **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, thick build applications and removing high spots in the concrete surface.

- **Etching Compound:** Smith’s Green Clean Pro buffered acidic etching compound may be used as follows:
  - Remediation method for removing densifiers/silicates after one of the above mentioned mechanical preparation methods.
  - Smith’s Green Clean Pro is used to clean, etch and profile bare concrete surface pores by removing the fine surface paste ensuring an even, dull appearance with no patterning or dis-similar appearance. Shiny areas should not exist and will need further treatment.

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 Finish 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.

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 HD-100 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. Please contact Smith’s for more recommendations for crack repairs, joint wall rebuilding, etc.

PATCHING: Any voids or missing sections of concrete without a layer of existing, cured concrete to adhere to must be pre-filled with either a Type K Concrete or a shrinkage compensated high strength mortar yielding less than 3% moisture content in a few days allowing for a minimum of 24 hour cure or longer depending on temperatures. As Epoxy HD-100 is a mortar, most patching isn’t necessary prior to resurfacing. However, should patching less than 1” deep repair be necessary and have existing concrete to bond to, clean and mechanically prepare the concrete for the entire phase then prime the desired deep repair area with Smith U100 Epoxy. Immediately patch the desired area with the Epoxy HD-100 mixture into the wet primer. Then proceed with resurfacing within 24 hours.

RADIUS OR CANT COVE: Prime wall surface with Smith’s Epoxy U100 used a paint brush or trim roller. Cove must be applied into fresh, wet primer otherwise the cove mix will slide across the cured primer surface.

Mix Smith’s Epoxy GEL150 for 1 minute. By volume, Mix 4-5 parts by volume of Wedron Sand or Color Quartz to 1 part by volume of Epoxy GEL150 and mix for an additional 1-2 minutes or until thoroughly blended while the drill is running slowly to avoid dry pockets of sand in the mixture. Immediately begin troweling the mixture onto the freshly primed wall and finish.

Do NOT mix more material than can be placed, finished and tied into with subsequent batches within a 15 minute period at 75°F substrate temperature.

PRIMING: Mix Smith U100 epoxy at a ratio of 2 parts by volume Part A to 1 Part by volume Part B in a clean mixing vessel and pour onto the prepared substrate in a straight ribbon. Using a flat squeegee or flexible blue steel smoother, spread the mixed U100 epoxy in a thin, even manner leaving no bare spots. Keep a wet edge while placing additional batches working fresh material into the edge of the prior batch. The primer layer should be placed at an average of 7 to 9 mils (178 - 225 sq.ft. per mixed gallon) to allow for proper penetration into the substrate. Very porous substrates may look blotchy after priming. If the primed substrate is not uniformly glossy and wet looking, a second coat of primer may be needed to avoid drying out the mortar mix during application of the mortar layer. There is no need to wait for the first coat of primer to dry or become tacky and may begin immediately after the first coat in those circumstances. Once sufficiently primed, proceed immediately with the mortar layer application and do not allow the primer to dry beyond tacky. Only prime enough area that can be effectively resurfaced while the primer is wet or still tacky to avoid the mortar from dragging or sliding during the finishing process.
MIXTURE: ADD 1 gallon of U100 PART B TO 2 gallons of U100 PART A and 1 units of Smith Epoxy Colorant (Optional) into the mixing vessel using the slow speed drill with appropriate mixing paddle for 1 minute. Slowly add in 4-5 bags of Trowel Mortar Aggregate Filler and continue to mix to a lump free consistency for an additional 1-2 minutes. DO NOT mix more mortar than can be placed and finished within a 15 minute window at 75°F.

APPLICATION: Once mixed, immediately pour out the HD-100 mortar into the screed box and placed the desired thickness on the floor. Use hand trowel to place and finish the HD-100 mortar in hard to reach areas. Always set the screed box depth 1/16" greater than the desired finished depth at the mortar will compact lightly during when trowel finished. (i.e. set 5/16" deep if 1/4" finished depth is desired)

COVERAGE: The yield varies depending on the applied thickness (see chart on first page for approximate coverage at select average application thickness).

FINISHING: Wearing spiked or cleated shoes, walk into the freshly placed mortar and begin using the power trowel at less than 50 rpm to compact and finish the mortar. Use a hand trowel to touch-up any imperfections during this process.

GROUT COATING: Allow the mortar to cure until hard enough to walk on without imprinting marks into the mortar surface before applying the grout coat layer to avoid surface damage to the fresh mortar. Once the mortar is hard enough to walk on without leaving an impression, the epoxy grout coat layer may proceed.

Smith's Epoxy GEL150 - Open all Part A's of Epoxy GEL150 and use the low speed drill with a clean mixing paddle to stir and suspend any of the filler that has settled to the bottom of the containers. While running the drill, make sure to move the mixing paddle fully to the bottom of the container and around the bottom edges to break up any settled slurry aggregate mixing each Part A thoroughly for about 1 minute. For pigmented applications, add Smith's EC Color Pack as follows to each Epoxy GEL150 Part A unit while stirring to suspend the aggregate and drill mix until color is uniformly dispersed in the Part A with no streaks:
- 3 gallon Part A = 1 EC Color Pack
- Up to 13% by volume when part mixing

ADD 1 Part Epoxy GEL150 Hardener (Part B) to 3 Parts by volume of Epoxy GEL150 PART A into the mixing vessel using the slow speed drill with appropriate mixing paddle for 3 minutes (i.e. 1 gallon Part B to 3 gallons Part A). Avoid whipping air into the mixture. Thoroughly mix to ensure desired coating properties.

NOTE: When using Epoxy GEL150 Part A’s that had the EC Color Packs added on a previous day, always drill blend the Part A’s again prior to use.

Pour out in a straight line on the mortar layer. Using a flat rubber squeegee, Magic Trowel or similar, walk across the mortar evenly spreading the grout coat at a rate of 200 to 321 sq.ft. (5 to 8 mils) per mixed gallon. Using a 3/8" nap roller and extension pole, immediately back roll the grout coat while wet to finish. Only mix enough of the grout coat that can be spread and finished within 25 minutes at 72°F.

Allow the Epoxy GEL150 grout coat to dry until hard enough to walk on without imprinting the surface before proceeding with additional layers. Once the grout coat layer is cured enough to walk on without leaving an impression, proceed with the 4th step, the epoxy build coat.

NOTE:
- If sanding of the grout coat is desired, allow the Epoxy GEL150 to cure for at least 5 to 7 hours at 72°F before attempting to sand otherwise surface damage may occur.
- If diamond grinding is desired, allow overnight cure or a minimum of 12 hours at 72°F (Metal Bond Diamonds only as Resin Bond Diamonds may contaminate the surface risking fish eyes in subsequent layers and stick to the epoxy causing smears/burns).

BUILD COAT: Mix 2 parts by volume Smith’s U100 Part A to 1 part by volume Smith’s Epoxy U100 Part B adding in 1 unit Smith's EC Epoxy Pigment to a 3 gallon mixture of Epoxy U100. Mix for 1 to 2 minutes. Wearing spiked or cleated shoes, walk on the grout coat layer and pour out the Epoxy U100 then spread using a 1/16” V-Notched Squeegee. Once evenly spread, immediately back roll the Epoxy U100 build coat work out any puddles, squeegee marks and create an even finish.

OPTIONAL TOPCOATS: If topcoating or additional layers are desired, Smith's Epoxy U100 does not require sanding of the surface (for adhesion) within the first 24 hours after Epoxy HD-100 application at temperatures below 85°F. However, beyond 24 hours, the surface will need to be abraded using 80 grit metal screens using an orbital buffer to abrade the surface then clean prior to the next layer. Allow Epoxy U100 to cure before walking on, sanding or applying optional proceeding layers and topcoats. Cooler temperatures will extend the cure time if sanding, wait at least 7 hours after the application of Epoxy U100 at 72°F otherwise damage to the surface may occur. More aggressive grit screens or sandpaper may create scratches, swirls and grooves in the finish of the Epoxy U100 that 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. Done correctly, the surface should be uniformly dull with no scratches easily identified.

Once abraded properly, vacuum the entire surface followed by either a thorough 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.
MAINTENANCE: The coating system must be allowed to cure for at least 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. 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 at least daily.

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.

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 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.

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.

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.

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 confirm 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 reduce to writing.

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. DO NOT PURCHASE AND USE THIS PRODUCT IF YOU HAVE NOT AGREED TO THE ABOVE TERMS.

Tyrex® is a registered trademark of E.I. du Pont de Nemours and Company. Plexiglas® is a registered trademark of Arkema. LEXAN® is a registered trademark of Saudi Basic Industries Corporation (SABIC).

Smith Paint Products • 2200 Paxton Street • Harrisburg, PA 17111 • 800-466-8781 • www.smithpaints.com
EPOXY HD-100 SYSTEM
100% SOLIDS, CYCLOALIPHATIC EPOXY MORTAR SYSTEM