



# Product Data Sheet

**EPOXY** Moisture/Alkalinity Control  
Regular Cure Primer  
**MAC100**

MAC100-PDS-021723

## MOISTURE / ALKALINITY CONTROL, 100% SOLIDS REGULAR CURE EPOXY PRIMER

**DESCRIPTION:** Smith's Epoxy MAC100 is a solvent free, 2-component 100% solids Osmotic Moisture Vapor / Alkalinity Control Epoxy Primer with high capillary penetration capabilities for absorption into porous substrates at all recommended application temperatures. Smith's Epoxy MAC100 suppresses Osmotic moisture vapor transmission levels to an acceptable level (i.e. below 3 lbs. at tested rates up to 25 lbs./14 pH per ASTM F1869 or 100% RH ASTM F2170) to receive subsequent systems.

Smith's Epoxy MAC100 is also suitable for direct adhesion to a variety of substrates, including but not limited to Concrete, properly prepared, well bonded and solid Ceramic / Porcelain / Quarry Tiles, and metal substrates (i.e. Aluminum, Copper, Steel, Zinc, etc.).

May be used as a primer beneath a variety of flooring, such as common resinous coatings (i.e. epoxy, MMA, cementitious urethanes, Polyaspartic, polyurethane), Polymer-modified cements (i.e. overlays, underlayments, resurfacers, etc.) and traditional commercial hard surface and resilient floor coverings.

### RECOMMENDED USES:

- Treats New or Existing Concrete
- Up to 100% Relative Humidity (ASTM F2170)
- Up to 25 lbs. (ASTM F1869)
- As a primer for:
  - Resinous Floor Coating Systems
  - Terrazzo
  - Resilient Floor Coverings
  - Ceramic Tile
  - Decorative Concrete Overlay systems
- Bonds to Properly Prepared:
  - Concrete
  - Metal (Steel, Copper, Aluminum, Zinc)
  - Ceramic / Quarry / Porcelain Tile

### HIGHLIGHTS:

- Exceeds all ASTM-F3010-13 requirements – Low Permeability
- Remediates High pH levels
- Acts as a vapor barrier to allow the installation of moisture sensitive floor coverings and floor coating systems
- Extended Working Time – 40 to 50 minutes @ 72°F
- Overnight return to service (Apply subsequent layers within 12 hours)
- Solvent and Water free – 100% Solids
- Low Odor & Low VOC's – Available in all regions

### STORAGE:

Indoors between 50°F (10°C) to 90°F (32.2°C)

### SUBSTRATE SURFACE TEMPERATURE:

50°F (10°C) to 90°F (32.2°C) between 30% to 80% ambient humidity

### SHELF LIFE:

1 Year in original, unopened containers

### AVAILABLE KIT SIZES:

2.5 gallon kit – SCS-MAC100-2.5gal

### COLORS:

Transparent Yellowish Clear; \*Tint with:  
(ISC Color Packs sold separately)



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

Pot-life	25 minutes @ 72°F / 50% RH
Working Time	80 to 100 minutes @ 50°F / 50% RH 40 to 50 minutes @ 72°F / 50% RH 20 to 25 minutes @ 90°F / 50% RH
Tack Free	24 to 36 hours @ 50°F / 50% RH 12 to 18 hours @ 72°F / 50% RH 7 to 9 hours @ 90°F / 50% RH
Recoat	12 to 24 hours @ 72°F / 50% RH
Foot Traffic	24 to 30 hours @ 72°F / 50% RH
Heavy Traffic	30 to 36 hours @ 72°F / 50% RH
Full Cure	6 to 7 days @ 72°F / 50% RH

### CURED COATING PROPERTIES (DRY FILM):

Property	Test Method	Results
Compressive Strength, psi (MPa)	ASTM D695	15,664 psi (108 MPa)
Flexural Strength - psi (MPa)	ASTM D790	10,152 psi (70 MPa)
Tensile Strength, psi (MPa) to steel	ASTM D2370	5,801 psi (40 MPa)
Percent Elongation	ASTM D2370	10%
Shore D Hardness	ASTM D2240	>80
Hardness (Pencil)	ASTM D3362	2H
VOC's-Volatile Organic Compounds	ASTM D3960	3 g/L
Viscosity – Mixed	ASTM 2196	600 cP
Adhesion to Concrete	ASTM D4541	Concrete Fails
Permanence*	ASTM E96 / DIN EIN 7783-2	0.026 grams / 24h*m <sup>2</sup> * mmHg

\* 2 coat tinted primer neat at 23 mil average total DFT. All 3 recommended application thicknesses meet ASTM E96 requirements of less than 1 gram per 24 hours

### APPROXIMATE COVERAGE:

Moisture Vapor	Coverage per mixed 2.5 gal kit
≤18 lbs. or 97% RH	325 sq.ft. per kit (12 mils = 133 sq.ft. per mixed gal yield)
≤25 lbs. or 100% RH	200 sq.ft. per kit (20 mils = 80 sq.ft. per mixed gal yield)
2 coat primer for Resurfacing, Broadcast or Metallic Coating Systems ≤25 lbs. or 100% RH	FIRST COAT = 265-325 sq.ft. / kit (12-15 mils = 106-133 sq.ft. per mixed gal yield) *SECOND COAT = 400 sq.ft. / kit (10 mils = 160 sq.ft. per mixed gal yield)



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**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 only give all of the necessary information and may not indicate other potential risks such as contaminants, etc. that may pose a risk for delamination, chemical attack, etc. which are not caused by moisture vapor emissions or high alkalinity.

Smith's Epoxy MAC100, in conjunction with proper testing and mechanical preparation, will 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](http://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. In cases where environmental conditions cannot be made to achieve acceptable moisture vapor readings or for exterior applications, only a 1 year standard product defect warranty shall be extended for those applications, no moisture vapor suppression warranty shall exist in these circumstances.

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.

**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. 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 can provide references for testing labs. When in doubt, hire a third party inspector with appropriate certifications and credentials.

Delamination and/or breakdown due to the following causes which would have been detected via Petrography are exclusions to Moisture Vapor Warranty:

- [AAR \(Alkaline Aggregate Reaction\)](#)
  - [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.

**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 11.5 to 14 pH) but relatively low CaCl reading (less than 6 lbs.) and RH readings above 85%. pH testing in conjunction with both CaCl and RH testing is a very inexpensive, easy way of identifying a potential risk and whether more in-depth testing should occur. Should further testing be necessary, concrete cores samples and Petrographic Analysis may offer the most in-depth analysis of the situation.

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.

**NOTE:**

- DO NOT USE MURIATIC/HYDROCHLORIC 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 Green Clean Pro 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

**NECESSARY TOOLS and EQUIPMENT:**

- Plastic Sheeting 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 450 rpm or less)
- Gauging tool:
  - [V-Notch Squeegee for 10 to 12 mil applications](#)
  - [V-Notch Squeegee for 15 to 20 mil applications](#)
- [Premium, Non-Shed, Solvent Resistant 3/8" Nap](#) Paint Roller Covers (i.e. Foam, Mohair, Microfiber, etc.)
- Paint Roller Frame with Extension Pole
- Spiked shoes or Soccer Cleats
- Cleaning Solvent (Acetone, Xylene)
- Cloth Rags for cleaning
- 2" Wide Masking Tape and Stucco or Duct Tape
- 2-4" Wide Chip Paint Brushes for cutting in edges
- 2-6" Wide 3/8" nap trim roller with frame and long handle for cutting in and tight areas
- Auto-scrubber or Orbital Floor Machine when degreasing or for silicate contamination removal



## MOISTURE / ALKALINITY CONTROL, 100% SOLIDS REGULAR CURE EPOXY PRIMER

**TEMPERATURE and HUMIDITY:** Substrate surface temperature and coatings must be maintained between 50°F (10°C) to 90°F (32.2°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.

**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.

*NOTE: Should verification of proper adhesion be desired or when applying Smith's Epoxy MAC100 primer 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.*

Recommended preparation methods below:

- **Steel Shot Blast (Shot size S-230 to S-330 grit recommended):** PREFERRED PREPARATION METHOD - 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. Use a vacuumized edge grinder with a diamond cup wheel to prepare hard to reach areas, against transitions, etc.
- **Diamond Grind:** Use 16 to 25 grit metal bond diamonds with an appropriate industrial, weighted head planetary floor grinder to thoroughly profile and remove the substrates surface until uniformly dull. *This method is only recommended for installations over solid, well-bonded existing coatings or ceramic tile systems over concrete. NOT AN ACCEPTABLE PREPARATION METHOD FOR MOISTURE VAPOR REMEDIATION, only for Alkalinity control priming.*
- **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 125 mils (entire system thickness).
- **\*Silicate Contaminate Removal:** [Smith's Green Clean Pro](#) buffered etching compound may be used ONLY as follows:
  - Remediation method for removing densifiers/silicates after one of the above mentioned mechanical preparation methods

*\*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.

**CRACKS, CHIPS & GOUGES:** Patching of chips, gouges, etc. may be repaired with a variety of different, compatible coating materials, to include but not limited to, [Smith's SKM](#), for applications with less than 15 lbs. (ASTM F1869) / 90% RH (ASTM F2170) with proper mechanical preparation and deglossing prior to installation of Smith's Epoxy MAC100 primer.

**JOINTS:** Cut all joints open with a Diamond cutting blade then fill with an appropriate semi-rigid joint filler prior to priming the substrate with Smith's Epoxy MAC100. As an alternative, Epoxy MAC100 may be mixed with silica fume (Cab-O-Sil or similar) to make a paste for filling joints and patching voids prior to priming.

**JOINTS IN NEW CONCRETE** - 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 & coolers must be brought up to & held at a minimum of 50°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](#) or [Smith's Poly JF/FC](#), ideally longer if possible.

**EXISTING CONCRETE CONTROL or CONSTRUCTION JOINTS** - Control & construction joints in floors tested to have less than 18 lbs. of osmotic moisture vapor pressure may be filled with [Smith's Poly-JF](#) or [Smith's Poly JF/FC Fast Cure](#) once the joint has been properly prepared. DO NOT USE Smith's Poly JF to fill joints in new concrete slabs with less than 60 to 90 days cure. See Poly JF data sheet for more detailed instructions regarding joint filling.

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

**MIXTURE:** Open the side latch to relieve the pressure in the can between the 2 components. Remove the top metal chamber insert to expose the resin in the lower pail. Premix the resin in the lower can for 1 to 2 minutes using a low speed drill (<450 RPM) with a paint mixing paddle. Next, replace the top plug then use a long flat head screw driver and a hammer to puncture the black gasket/seal in the center of the lid and allow the top to drain into the about 2 minutes. Once the top is completely drained, remove the top section. Use a low speed 1/2" drill (<450 RPM) with a clean mixing paddle to mixing for approximately 2 to 3 minute making sure to move the mixing paddle fully to the bottom of the container and around the bottom edges while mixing. Mix the entire kit.



lower chamber for



**For Solid Color:** Add 1 can of Smith's ISC Color Pack to each kit of Smith's Epoxy MAC100 after mixing as stated above and blend until color is uniformly dispersed with no streaks (About 1 minute additional).

- 2.5 gallon Kit = 1 ISC Color Pack [Only recommended for Smith's Oil Stop priming system or in the second coat over a clear Smith's Epoxy MAC100 or Smith's Epoxy MAC125 primer in the 2 coat primer system]

**Part Mixing by Volume:**

- NOT RECOMMENDED – MIX THE ENTIRE KIT

DO NOT ATTEMPT to mix multiple kits in a single mixing vessel at the same time. Only mix one unit at a time to ensure thorough mixing of the resin.

# Smith's

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**APPLICATION:** Once mixed, immediately pour out Smith's Epoxy MAC100 in a straight bead onto the area to be coated. Spread the primer with the 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 Epoxy MAC100 into the edge of the previously spread mix and continue to spread/gauge while walking in the mixture with spiked/cleated shoes. Break the surface tension and bubbles using a 3/8" Non-shed roller cover attached to an extension pole attached to an extension pole immediately following the gauging step.

Ideally, the mixing, delivery, pouring, gauging and rolling steps of mixed Smith's Epoxy MAC100 should each have a single, dedicated person performing the activity. Larger projects with multiple batches being mixed concurrently require more laborers and mixers.

*NOTE: Do NOT Mix more Smith's Epoxy MAC100 than can be mixed, placed, finished and tied into with the next batches within a 30 minute window at 72°F and 50% Humidity. Higher temperatures will reduce this time frame.*

**COVERAGE:** \*See chart on page 1 of this document.

**2 COAT PRIMING:** Allow the first coat of Smith's Epoxy MAC100 to cure before applying any optional proceeding layers. Cooler temperatures will extend the cure time.

Within 24 hours, apply the second coat of Smith's Epoxy MAC100 directly over the previous coat using the same method previously used. If the subsequent layer is to be a higher build system, such as an Epoxy Mortar, aggregate broadcast system (i.e. Double Broadcast Quartz, solid color Shop Floor, etc.), Vinyl Chip, CPR (Cementitious Urethane Resurfacer), Smith's Epoxy SLS100 HD Slurry, Smith's Thixo 75 Epoxy Slurry, Decorative Concrete Overlay or Cement Leveling Compound; broadcast the surface of the second coat of primer immediately with Wedron Sand or Color Quartz or Vinyl Chip (depending on decorative broadcast application) to rejection into the fresh Epoxy MAC 100 and allow to harden before proceeding with the subsequent layer.

Although Smith's Epoxy MAC100 does not require sanding of the surface (for adhesion) between coats within the first 24 hours after Epoxy MAC100 application at temperatures below 85°F, sanding ensures the best possible aesthetics and IS REQUIRED for adhesion if the primer cures for more than 24 hours. When sanding, wait at least 14 hours after the application of Epoxy MAC100 at >72°F or damage to the surface may occur. Hard to reach areas or any depressions should be made uniformly dull using an orbital palm sander with 80 to 120 grit sandpaper or screens. Deglossing larger open areas should use 80 to 120 grit metal screens with an orbital Low Speed Swing Buffer to abrade the surface uniformly dull with no shiny areas.

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.

**LIMITED LIABILITY:** \*See separate [Moisture Vapor Remediation Extended Warranty](#) for special warranty details and instructions.

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