Smith's

Product Data Sheet & Application Guide

Epoxy FW38 — Fast-Cure, Waterborne Epoxy Primer/Sealer

38% Solids, Fast-Curing, Waterborne Epoxy Primer

EFW38-PDS-021220

DESCRIPTION:

Smith's Epoxy FW38 is a 2-component, low odor, 38% solids waterborne epoxy primer and sealer for use over concrete, wood, and a variety of other substrates.

Smith's Epoxy FW38 has a 1 hour pot-life and penetrates well into porous substrates at all recommended application temperatures allowing for subsequent layers to be applied in a few hours. May be applied via roller, brush or HVLP sprayer.

RECOMMENDED USES:

Bonds to properly prepared, sound & solid:

- Concrete, CMU & Light Weight Concrete
- Wood (APA Exterior or Marine rated)

HIGHLIGHTS:

- Inert to High pH levels
- Easy to Apply
- 1 hour Pot Life
- Water Clean-up while wet
- Low Odor & VOC's – Available in all regions

STORAGE:

Indoors between 50°F (10°C) to 95°F (35°C)

INSTALLATION TEMPERATURE RANGE:

55°F (12.8°C) to 100°F (37.8°C) and between 10% to 80% ambient humidity

SHELF LIFE:

1 Year in original, unopened containers

AVAILABLE KIT SIZES:

SCS-EFW38-160	Clear	1.25 gallon kit
SCS-EFW38-640	Clear	5 gallon kit

COLOR:

Clear – Smith's WSC Color Packs available separately in standard colors White, Boulder, Black, or Glacier Gray
**WSC custom colors are available special order*

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

Note: *Higher Humidity and/or Lower Temperatures will extend rate of cure*

Pot Life	60 minutes @ 72°F / 50% RH
Working Time	45 minutes @ 72°F / 50% RH
Tack Free	60 to 90 minutes @ 72°F / 50% RH
Recoat	3 to 24 hours @ 72°F / 50% RH
Foot Traffic	10 hours @ 72°F / 50% RH
Heavy Traffic	24 to 36 hours @ 72°F / 50% RH
Full Cure	7 days @ 72°F / 50% RH

CURED COATING PROPERTIES (DRY FILM):

Property	Test Method	Results
Tensile Strength, psi (MPa)	ASTM D2370	4,000 psi (40 MPa)
Flexibility	ASTM D522	1/8" – Passes highest rating
VOC's-Volatile Organic Compounds	ASTM D3960	49 g/L (Clear)
Viscosity – Mixed	ASTM 2196	72 cP (Clear)
Solids Content		38% (Clear)
Adhesion to Damp Concrete	ASTM D4541	Concrete Fails
Impact Resistance -Tested on concrete block	ASTM D3134	Pass
	ASTM D2794	160 in.lbs.- no delamination/chipping

**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 varies due to application thickness, floor profile and absorbency of concrete.
Epoxy FW38 coverage per kit as follows (mils = sq.ft. per gallon):
Coverage Equation: 1604 ÷ milage = Dry Film Thickness

Mil Thickness Wet (DRY)	Coverage per mixed gallon
7 mils WFT (2.3 DFT)	229 sq.ft.
10 mils WFT (3.1 DFT)	160 sq.ft.

LIMITATIONS:

- For water immersion or industrial and wheeled traffic/fork lift traffic conditions, a minimum of an ICRI CSP 3 profile is required for mechanical preparation
- *NOT U.V Stable* - Clear material not suitable for exterior use. Will chalk and discolor with U.V. exposure

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INSPECT THE SUBSTRATE: Ensure the substrate 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.

TEMPERATURE and HUMIDITY: Substrate temperature and materials must be maintained between 55°F (12.8°C) to 100°F (37.8°C) with less than 80% Ambient Humidity for 24 hours prior to and 24 hours after installation. Do not install coatings when the Dew point is within 5° of the temperature.

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 contaminates, 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 or *Smith's Epoxy MAC125*, 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, 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.

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 with appropriate certifications and credentials.

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.

Delamination and/or breakdown due to the following causes are examples of substrate contamination:

- 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/HYDROCLORIC 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 400 rpm or less)
- Gauging tool:
  - V-Notch Squeegee for 10 - 12 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
- Cloth Rags and water for clean up
- 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

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 with Smith's Epoxy FW38. 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, etc.

CRACKS & OTHER SURFACE REPAIRS: Surface defects may be repaired after priming with Smith's Epoxy FW38 with:

- *Smith's Epoxy SLS100* (Regular Formula) 30 mils to 500 mils
  – Self Leveling Slurry
  ** Use Smith's Epoxy SLS125 Winter Formula Slurry for application temperatures between 45°F to 65°F*
- *Smith's Poly-FLEX*
  – Flexible Self-Leveling Slurry 25 mils to 500 mils
- *Smith's Epoxy HD-100* >1/8" to 1" thick
  – Epoxy Mortar System for curbing, sloping, deep repairs, etc.
- Smith's CPR Cementitious Polyurethane Resurfacers
  – *Smith's CPR-SL* Medium-Duty, Self Leveling Grade
  – *Smith's CPR-MD* Moderate Duty, Flowable Rake & Trowel Grade
  – *Smith's CPR-HD* Heavy-Duty, Trowel Grade
- *Smith's 4in1* >1/32" to any thickness, Horizontal & Vertical
  – Polymer Modified Cement Overlay (Requires no less than 3 days to cure prior to applying a high build resinous coating over this product)
- *Smith's Epoxy GEL150* (Regular Cure)
  – Minor repairs / skimcoating
- Smith's Epoxy GEL150/FC (Fast Cure)
  – Minor repairs/skimcoating
- *Smith's Poly PCF-45*
  – Fast Curing Patch & Crack Filler

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

SUBSTRATE PREPARATION: Achieve a CSP 2 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 FW38 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):*** 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. Ideal preparation method for weak concrete surfaces and high build coating systems greater than 20 mils (entire system thickness)
- ***Diamond Grind:*** Use 16 to 70 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 thin-mil coatings (<30 mils of total system DFT) or grind & seal applications.* Ideal preparation method for garage floor coatings, retail, residential, many commercial seamless and decorative system applications without constant wheel traffic and total system thickness of less than 30 mils
- ***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 high build coating systems 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.*

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MIXTURE: Mix each component separately for 2 minutes to redistribute the components prior to combining.

Volume Mix Ratio:
CLEAR - 1 Part A to 4 Parts B
PIGMENTED – 1 Part A to 5 Parts B

Mix combined components of Smith's Epoxy FW38 for 1 - 2 minutes using a low speed (≤450 RPM) ½" drill using a paint mixing paddle in a plastic 5 gallon pail. ***DO NOT MIX MORE MATERIAL THAN CAN BE USED IN 1 HOUR.*** If combined mixture is allowed to sit for more than 20 minutes, stir using drill with mixing paddle slowly for 30 to 45 seconds prior to continuing use.

APPLICATION:

HORIZONTAL (*i.e. Floors****)*** **-** Once mixed, pour out Smith's Epoxy FW38 in a straight bead onto the area to be coated. Either dip and roll with a 3/8" nap paint roller attached to an extension pole or spread the primer with a flat rubber blade squeegee then back roll with a 3/8" nap paint roller and evenly cover the area.

NOTE: Do NOT Mix more Epoxy FW38 than can be mixed, placed, finished and tied into with the next batches within a 45 minute window at 72°F and 50% Humidity. Higher temperatures will reduce this time frame.

VERTICAL **-** Smith's Epoxy FW38 may be applied vertically via sprayer (air or airless), brush or roller (close nap) as outlined in CFI Bulletin G-2.

NOTE: Individuals sensitive to epoxy should not being present while spray applying this product to avoid a potentially serious allergic reaction.

When spray applying, use of a self-contained respiratory equipment (TC 19C NIOSH/MESA) is required of all personnel in the area to avoid inhaling atomized spray and fumes. In all cases, observe OSHA / NIOSH regulations for respirator use (29 CFR 1910.134) whenever a respirator is used. Spray equipment must be equipped with properly working vapor traps and air supply must be dry. In poorly ventilated enclosed areas, a fresh air supplied mask should be worn.

SUGGESTED SPRAY EQUIPMENT & SETTINGS

Airless Equipment	Gun	Fluid Tip	Gun Pressure	Temp.	Pattern
Binks 98 Series	39/43	9-1860	2000 to 2200 psi	Ambient	12" to 14"
DeVilbiss 4711	JGA-5026	JAC-31	2000 to 2200 psi	Ambient	12" to 14"
Grayco Hydra-Spray	Standard	163-617	2000 to 2200 psi	Ambient	12" to 14"
Nordson	Standard	20C09	2000 to 2200 psi	Ambient	16" to 18"
Gunjet	25A	650050TC	2000 to 2200 psi	Ambient	12" to 14"

Normal Spray Equipment	Gun	Nozzle	Fluid Needle	Air Cap
Binks	18	66 or 63C	65 or 63A	63PB
DeVilbiss	MBC 510	E or FF	E or FF	765
DeVilbiss	JGA 502	E or FF	E or FF	765

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

LIMITED LIABILITY: *See separate Moisture Vapor Remediation Warranty for special warranty details on Smith's Epoxy MAC Osmotic Moisture Vapor & Alkalinity remediation primers*

Standard 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. 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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