



TDS

TECHNICAL DATA SHEET

E4E WB ECO PRIME

38% Solids, Fast-Curing, Waterborne Epoxy Primer

PRODUCT DESCRIPTION

E4E WB ECO PRIME is a 2-component, low odor, 38% solids waterborne epoxy primer and sealer for use over concrete, wood, and a variety of other substrates.

E4E WB ECO PRIME 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.

FEATURES AND BENEFITS

- Bonds to properly prepared, sound & solid:
 - Concrete, CMU & Light Weight Concrete
 - Wood (APA Exterior or Marine rated)
- Inert to High pH levels
- Easy to Apply
- 1 hour Pot-Life
- Fast Cure – typically 3 hours at 72°F
- Solids colors possible with addition of E4E ECO PRIME COLOR PACKS
- Soap & Water Clean-up while wet
- Low Odor & VOC's – Available in all regions

MATERIAL PACKAGING OPTIONS

CLEAR: 1.25 gallon kit

COLOR: E4E ECO PRIME COLOR PACKS available separately in standard colors White, Black, Gray or Tan

LIMITATIONS:

- Industrial and wheeled traffic / fork lift traffic require a minimum of an ICRI CSP 3 profile is required for mechanical preparation (See Substrate Preparation)
- For water immersion conditions, a minimum of an ICRI CSP 3 profile is required for mechanical preparation
- Wood substrates, including new, require sanding or grinding surface preparation
- NOT U.V Stable - Clear material not suitable for exterior use. Will chalk and discolor with U.V. exposure
- Fisheyes are a result of surface contamination

STORAGE AND SHELF LIFE

STORAGE:

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

SUBSTRATE SURFACE TEMPERATURE:

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

SHELF LIFE:

1 Year in original, unopened containers

POT-LIFE & 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

CURE 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	72cP (Clear)
Solids Content		38% (Clear)
Adhesion to Damp Concrete	ASTM D4541	Concrete Fails
Impact Resistance	ASTM D3134	Pass
-Tested on concrete block	ASTM D2794	160 in. lbs. - no delamination/chipping

APPROXIMATE COVERAGE:

Coverage varies due to application thickness, floor profile and absorbency of concrete.

Coverage Equation: $1604 \div \text{mileage} = \text{Wet Film Thickness}$

Mil Thickness Wet (DRY) Coverage per mixed gallon

7 mils WFT (2.66 DFT) 229 sq.ft.

10 mils WFT (3.8 DFT) 160 sq.ft.

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 1/2" drill (Variable Speed <650 rpm)
- V-Notch Squeegee for 5 – 7 mil or 8 - 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
- Cloth Rags, Dish Soap & water for clean up
- 2" Wide Premium Masking Tape or Stucco Vinyl Tape
- 2" to 4" Wide Chip Paint Brushes for cutting in edges
- 2" to 6" Wide 3/8" nap trim roller & frame for cutting in tight areas
- Auto-scrubber or Low Speed Orbital Floor Machine with soft bristle nylon brush head (for degreasing or silicate

contamination removal

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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. 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)
- 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

TEMPORARY HEAT: During application in environments using temporary heat, make sure to exhaust emissions and toxic fumes from temporary heaters to the exterior of the building to prevent health hazards and damage to work. Many temporary heating methods emit unburned petroleum into the air which act as a bond should be determined and may require additional testing.

OIL CONTAMINATION: 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 breaker once it falls onto the surface of the substrate

- Precautions must be taken when using LP, gasoline, diesel, etc. fueled temporary heat
- Always shut off temporary heat at least 2 to 3 hours prior to coating application to reduce risk of airborne petroleum contamination
- Always clean the mechanically prepared surface with Oil Clean or TSP using an auto-scrubber followed by a thorough clean water rinse when temporary heat has been in use *Fisheyes are a result of surface contamination

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. 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. E4E 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.

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- 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 Epoxy Depot for recommendations while following local regulations regarding contaminant and disposal. Should be determined and may require additional testing. Once the type of contaminant is determined, contact Epoxy Depot for recommendations while following local regulations regarding contaminant and disposal.

OIL CONTAMINATION: 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. reading) with RH readings above 85%. Testing pH levels with a pH pencil or Litmus paper along with distilled water is a very inexpensive, easy way of identifying a potential risk, in conjunction with Moisture Vapor testing methods 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 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

JOINTS: 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. 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 45°F substrate temperature for no less than 10 days prior to as well as 7 to 10 days after filling, ideally longer if possible. Cut all joints open with a Diamond cutting blade and fill with an appropriate semi-rigid joint filler, prior to priming the substrate with E4E WB ECO PRIME.

CRACKS & OTHER SURFACE REPAIRS: Surface defects may be repaired with E4E UR A FILL OR GEL PATCH. Cementitious compounds must be rated for direct wheeled traffic, exterior / interior use and require additional cure times prior to coating with a high solids resinous coating system. As a rule of thumb, the average rate of cure required to apply a coating system with any layer greater than 60% solids at 72°F / 50% Humidity:

- Polymer-Modified Portland Cement-based Self-Leveling Overlayments & Mortars >5,000 psi = 2 to 3 days per ¼" ave. thickness
- Calcium Alumina & CSA Cement-based Self-Leveling Overlayments & Mortars >5,000 psi = 24 hours per ¼" ave. thickness
- Trowel Grade Cement-based Patch >5,000 psi = 24 hours per ¼" ave. thickness

**Must be non-water soluble & rated for both interior & exterior rated use*

***Follow manufacturers recommended cure rate for moisture cured adhesive*

Please contact Epoxy Depot with additional questions regarding 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 E4E WB ECO PRIME 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): Ideal preparation method for weak concrete surfaces and high build coating systems greater than 20 mils (entire system thickness). 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:** This method is only recommended for thin-mil coatings (<30 mils of total system DFT) or grind & seal applications. 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. 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:** Ideal preparation method for weak concrete surfaces, previously coated floors, adhesive residues or high build coating systems greater than 125 mils (entire system thickness). Sweep to remove large debris and vacuum to remove fine dust. Scarify to uniformly remove the concrete surface until white. Thoroughly vacuum all dust / debris
- **Silicate Contaminate Removal:** Green Clean 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 Sanding & Priming Wooden Substrates – Wood substrates must yield the correct deflection criteria of L / 360 per ASTM C 627 (i.e. Deflection from 300 lbs. concentrated load standard test method). Sand wooden substrates using an appropriate wood floor sander to clean as well as remove existing sealers, paints, wax, etc. until the wood surface is thoroughly clean and absorbent. Vacuum the entire surface, paying close attention to voids, knots and seams between boards to remove all sanding dust and debris. Skim coat the joint seams as well as any holes to seal off voids that could potentially leak. Once cured, sand all patching relatively flush to the surrounding surface, vacuum the entire floor thoroughly then wipe the substrate with a clean microfiber mop to loosen any remaining dust prior to priming with E4E WB ECO PRIME. *DO NOT INSTALL over oil contaminated, dry-rotten, insect damaged or unsound substrates.

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MIXING: 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 4 Parts B

plus 5% by volume of E4E WB ECO PRIME

Mix combined components of E4E WB ECO PRIME for 1 to 2

minutes using a low speed (≤ 450 RPM) $\frac{1}{2}$ " 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 E4E WB ECO PRIME in a straight bead onto the area to be coated. Either dip and roll with a $\frac{3}{8}$ " nap paint roller attached to an extension pole or spread the primer with a flat rubber blade squeegee then back roll with a $\frac{3}{8}$ " nap paint roller and evenly cover the area.

NOTE: Do NOT Mix more ECO PRIME 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 - E4E WB ECO PRIME may be applied vertically via sprayer (air or airless), brush or roller (close nap).

NOTE: Individuals sensitive to epoxy should not be 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.

APPLICATION OF SUBSEQUENT LAYERS:

Allow E4E WB ECO PRIME to hard set before proceeding with subsequent layers.

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	MB510	E or FF	E or FF	765
DeVilbiss	JGA 502	E or FF	E or FF	765



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