

# Matrix VE

**Pour applied, viscosity enhanced cementitious repair mortar, formulated to be compatible with the color and physical properties of parent material.**

**WHERE TO USE**  
**Form repairs and place in molds for natural and cast stone, terracotta, and brick.**

## Performance Characteristics

### Low shrinkage

- n Maintains integrity of repair, resists cracking.

### Thermal compatibility

- n Prevents delamination due to temperature change.

### Durable

- n Resistant to weathering action, excellent freeze/thaw stability and abrasion resistance.

### Very low permeability

- n Resistant to deicing salts, chloride, and chemical attack, and environmental pollution.

### Breathability

- n Will not cause damage to structure by restricting moisture vapor flow.

### Pourable

- n Viscosity for molds and on-site repairs.

### Single component

- n Easy to batch in less than full pail quantities.

### On-site color matching

- n Great matches, no wait for factory samples.

## Surface Preparation

- n Remove loose and deteriorated material, laitance, dirt, dust, oil and any surface contaminants that will inhibit proper bond.
- n Saw cut edges with a diamond blade at a 90° angle to eliminate feather edging. Avoid polishing the edges, as this will inhibit bond.
- n Avoid bruising or micro cracking during surface preparation. Refer to ICRI Surface Preparation Guide 03732.
- n Repair zone must be a minimum of 1/2 inch deep, of simple geometry, with no complex edge conditions.
- n Avoid long narrow repairs; these have a greater tendency to crack.
- n Apply Conpro Start where a consolidant is of benefit.

- n Saturate substrate with clean water, (saturated surface dry/SSD), with no standing water during Application.
- n Remove concrete from corroded steel and several inches beyond to expose non-corroded steel.
- n Provide a 3/4 inch clearance between the concrete and steel.
- n Damaged reinforcing steel should be examined by a qualified engineer and appropriate action taken.

## Embedded Metal and Steel

- n Remove all scaling rust from embedded metal and steel.
- n Apply ECB anti-corrosion coating.

## Mixing

- n Measure Matrix VE powder and water to achieve a 4 to 4.5 parts powder to 1 part water ratio (or approximately 1 gallon per 50 lb unit of Matrix VE).
- n Pour measured water into a clean container suitable for mixing.
- n Place 1/2 of measured Matrix VE into mixing container with water and mix until uniform. Add remaining 1/2 Matrix VE to the mixing container and mix until fully blended to a uniform, lump free consistency.
- n Mechanical mixing at 400 – 600 rpm is essential to change the viscosity of the material. Do not mix by hand.
- n Additional water may be added to achieve desired consistency for placement of the Matrix VE. Over watering the mix will affect final color.

- n For multiple batches, the additional water should be added in a uniform fashion to avoid color shift.
- n Insufficient water will not hydrate the material and it will not achieve full strength. Mix only as much material as can be placed in 15 -20 minutes.
- n Do not over mix, as this will entrain air.
- n Do not retemper, this will affect color.

## Application

- n At the time of application, surfaces should be saturated surface dry (SSD) but hold no standing water.
- n Pour material into form/mold.
- n Force the material against the edges, working from right to left or left to right, or vibrate.
- n Do not overwork the finish.

## Curing

- n Ensure repair zone stays properly hydrated. This may vary depending on ambient conditions. If hydration is not maintained, the repair may flash dry and not achieve full strength. Refer to ACRI 308R-01 for detailed curing recommendations. If the repair is inaccessible, tape polyethylene over area to retain moisture. Do not allow polyethylene to contact the material.
- n Protect repair from direct sunlight, wind, rain and frost during curing period.

## Clean Up

- n Clean tools and equipment with water immediately after use.
- n Cured material must be removed mechanically.

# Matrix VE

## Theoretical Yield

Yield per Pail	Repair Depth	Square Feet
0.5 cubic feet	1/2 Inch	12.00
0.5 cubic feet	1 Inch	6.00
0.5 cubic feet	1.5 Inches	4.50
0.5 cubic feet	2 Inches	3.00

## Product Handling

### Packaging

- n 5 gallon plastic pails – 50 lbs.

### Shelf Life

- n 18 months when properly stored.

### Storage

- n Transport and store in cool, clean, dry conditions in unopened containers.
- n High temperature or high humidity will reduce shelf life.

## Limitations

- n Do not apply unless substrate and ambient temperature can be maintained at a minimum of 40°F for 24 hours. Refer to ACI Cold Weather Application Guidelines.
- n Cold mixing water and low temperatures will retard set. Hot water

and high temperatures will accelerate set.

- n Protect application from precipitation and high wind for at least 24 hours.
- n Do not add more water than specified.
- n Do not re-temper, as this will affect color.
- n Avoid overworking material during placement as this will affect color and cause surface (map) cracking.
- n Do not allow polyethylene or burlene to touch surface while curing as this will cause whitening of the material.

## Health and Safety

- n Product is alkaline.
- n Do not ingest.
- n Avoid breathing dust.
- n Avoid contact with skin and eyes.

- n Refer to Safety Data Sheet (SDS) for additional information.

## First Aid

- n In case of skin contact, wash thoroughly with soap and water.
- n For eye contact, flush immediately with a high volume of water for at least 15 minutes and contact a medical professional.
- n For respiratory problems, remove person to fresh air.

## Disposal

- n Dispose of material in accordance with local, state and federal regulations.

## Technical Data

Physical state and appearance		Dry, pigmented powder		
Base		Portland cement		
pH	Wet mix	>12		
Water/dry material ratio		0.20		
Dry bulk density	ASTM C 188	92 lbs./ft. <sup>3</sup>		
Density	Hardened	118 lbs./ft. <sup>3</sup>		
Setting time by vicat needle	ASTM C 191	240 minutes		
Percent air – pressure method	ASTM C 231	4%		
Water absorption	ASTM C 140	11%		
Water vapor transmission	ASTM E 96	5.2 perms		
Length change	ASTM C 157	<500 µstrains @28 days		
Modulus of elasticity	ASTM C 469	2.6 X 10 <sup>6</sup>		
Slant shear bond strength – epoxy	ASTM C 882	1800 psi		
		<b>7 Days</b>	<b>14 Days</b>	<b>28 Days</b>
Compressive strength – psi	ASTM C 109	2900		3000
Tensile strength – psi	ASTM C 307	400	480	560

## FOR PROFESSIONAL USE ONLY

Conproco warrants this product for one year from the date of manufacture to be free from manufacturing defects and to meet the technical properties on the current technical data sheet if used as directed within shelf life. User determines suitability of product for use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product, exclusive of labor or cost of labor. July 24, 2019

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