

Matrix

Trowel applied, cementitious repair mortar, formulated to be compatible with the color and physical properties of parent material.

WHERE TO USE
Repair and reconstruct natural and cast stone, terracotta, and brick. Unique on-site color matching by trained, certified technicians.

Performance Characteristics

Low shrinkage

- Maintains integrity of repair, resists cracking.

Thermal compatibility

- Prevents delamination due to temperature change.

Durable

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

Very low permeability

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

Breathability

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

Shaveable

- Recreate sharp edges and architectural details.

Single component

- Easy to batch in less than full pail quantities.

On-site color matching

- Great matches, no wait for factory samples.

Surface Preparation

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

- Remove concrete from corroded steel and several inches beyond to expose non-corroded steel.
- Provide a 3/4 inch clearance between the concrete and steel.
- Damaged reinforcing steel should be inspected by a qualified engineer and appropriate action taken.

Priming

Stone, Terracotta and Concrete

- Prime the prepared substrate including all edges with a bond coat of *Matrix*. Work the bond coat into the substrate to ensure intimate contact and establish bond. The repair mortar must be applied into the plastic bond coat. If the bond coat dries, remove and re-apply.

Embedded Metal and Steel

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

Mixing

- Measure Matrix 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).
- Pour measured water into a clean container suitable for mixing.
- Place 1/2 of measured Matrix into mixing container with water and mix until uniform. Add remaining 1/2 Matrix to the mixing container and mix until fully blended to a uniform, lump free consistency.
- Mechanically mix using a low speed drill (400 - 600 rpm) and mixing paddle or mortar mixer.
- Additional water may be added to achieve desired consistency for placement of the Matrix. Over watering the mix will affect final color.
- For multiple batches, the additional water should be added in a uniform fashion to avoid color shift.
- 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.

- Do not over mix, as this will entrain excess air.
- Do not re-temper, this will affect color.

Application

- At the time of application, surfaces should be saturated surface dry/damp (SSD) but hold no standing water.
- Follow instructions for *Priming*.
- Force the material against the edges of the repair, working from right to left or left to right.
- Over-build repair zone by 1/4 inch.
- Shave to final form with Mitre Rod up to 2 hours (longer in cold temperature) after application.
- Do not overwork the finish.

Curing

- 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 ACI 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.
- Protect repair from direct sunlight, wind, rain and frost during curing period.

Clean Up

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

Matrix

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

- 5 gallon plastic pails – 50 lbs.

Shelf Life

- 18 months when properly stored.

Storage

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

Limitations

- 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.
- Cold mixing water and low temperature will retard set. Hot water and high temperature will accelerate set.
- Protect application from precipitation and high wind for at least 24 hours.
- Do not add more water than specified.
- Do not re-temper, as this will affect color.
- Avoid overworking material during placement as this will affect color and cause surface checking.
- Do not allow polyethylene or burlene to touch surface while curing as this will cause whitening of the material.

Health and Safety

- Product is alkaline.
- Do not ingest.
- Avoid breathing dust.
- Avoid contact with skin and eyes.
- Refer to Material Safety Data Sheet (MSDS) for additional information.

First Aid

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

Disposal

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

Technical Data

Physical state and appearance		Dry, pigmented powder		
Base		Portland cement		
pH	Wet mix	>12		
Water/dry material ratio	Wet mix	0.20		
Dry bulk density	ASTM C188	92 lbs./ft. ³		
Setting time by vicat needle	ASTM C191	240 minutes		
Percent air – pressure method	ASTM C231	4%		
Water absorption	ASTM C140	11%		
Water vapor transmission	ASTM E96	5.2 perms		
Length change	ASTM C157	<500 μ strains @ 28 days		
Modulus of elasticity	ASTM C469	2.6 x 10 ⁶		
Slant shear bond strength – epoxy	ASTM C882	1800 psi		
		7 Days	14 Days	28 Days
Compressive strength – psi	ASTM C109	2900	3000	3000
Tensile strength – psi	ASTM C307	400	480	560

FOR PROFESSIONAL USE ONLY

Conproco Corp. warrants this product for one year from date of installation 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. May 11, 2017

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