conproco® CORPORATION

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

- Mechanically mix using a low speed drill (400 - 600 rpm) and mixing paddle or mortar mixer.
- Place 5 parts *Matrix* into a clean container and add 1 part water (3 oz. of water per 1 lb. *Matrix*).
- Mix continuously for 3 minutes to a uniform, lump-free consistency.
- Additional water will affect final color. For multiple batches do not vary the water addition rate.
- 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 (SSD) but hold no standing water.
- Follow instructions for *Priming*.
- Force the material against the edges of the repair, working toward the center.
- Material may be applied in multiple lifts of not less than 3/8 inch and no greater than 2 inches.
- Consolidate each lift and allow to stiffen to thumb-print hard before continuing.
- Scratch (cross-hatch) each lift to prepare surface for subsequent lift.
- Over-build final lift by 1/4 inch.
- Shave to final form with trowel edge up to 2 hours after application.
- Do not overwork the finish.

CURING

- Keep damp with a fine mist of water for 24 hours. Refer to ACI 308R-01 for detailed curing recommendations. If repair is inaccessible, tape polyethylene over area to retain moisture. Do not allow polyethylene to contact 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
0.4 cubic feet	1/2 Inch	9.60
0.4 cubic feet	1 Inch	4.80
0.4 cubic feet	1.5 Inches	3.20
0.4 cubic feet	2 Inches	2.40

PRODUCT HANDLING

Packaging

- 5 gallon plastic pails – 46 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 µstrains @ 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
Tensile strength – psi	ASTM C307	400	480	560

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