

SECTION 03722

EMACO® T430

RAPID STRENGTH REPAIR MORTAR WITH EXTENDED WORKING TIME

NOTE TO SPECIFIERS

The purpose of this suggested specification is to assist the specifier while developing a specification for the use of Master Builders *EMACO T430*. This specification has been prepared to be part of a complete project specification. It has not been prepared to be a “stand alone” item. This document is not intended to be copied directly into project specifications.

PART 1 - GENERAL

1.01 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.02 Summary

- A. This Section specifies a one component cement-based rapid strength repair mortar.
- B. This Product is designed for repairing horizontal and vertical formed concrete surfaces where minimal downtime is required.

1.03 References

ASTM C 33-90	Specification for Concrete Aggregates.
ASTM C 109-90	Test Method for Compressive Strength of Hydraulic Cement Mortars.
ASTM C 266-89	Test Method For Time of Setting of Hydraulic Cement Paste by Gilmore Needles.
ASTM C 348-91	Test Method for Flexural Strength of Hydraulic Cement Mortars.
ASTM C 496-90	Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens.
ASTM C 666-91	Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
ASTM C 779-89	Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
ASTM C 882-87	Test Method for Bond Strength of Epoxy-Resins Systems used with Concrete.
ASTM C 928	Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs.
ASTM C 1012	Test Method for Length of Change of Hydraulic Cement Mortars Exposed to Sulfate Solution - Modified.

1.04 System Performance Requirements

- A. Provide a rapid strength repair mortar that, when air cured, produces the following minimum properties:
 - 1. Compressive Strength: 980 psi (6.8 MPa) @ 3 hours; 4000 psi (27.6 MPa) @ 24 hours;
(ASTM C 109) 9950 psi (68.6 MPa) @ 7 days; 10,990 psi (75.8 MPa) @ 28 days.
 - 2. Flexural Strength (ASTM C 348): 580 psi (4.0 MPa) @ 1 day; 880 psi (6.1 MPa) @ 7 days;
1150 psi (7.9 MPa) @ 28 days.

1.04 System Performance Requirements, continued

3. Split Tensile Strength (ASTM C 496): 550 psi (3.8 MPa) @ 1 day; 1100 psi (7.6 MPa) @ 7 days; 1250 psi (8.6 MPa) @ 28 days.
4. Slant Shear Bond (ASTM C 882-modified): 3300 psi (22.8 MPa) min. @ 28 days.
5. Freeze-Thaw Resistance (ASTM C 666, 300 cycles): Minimum RDF 98.5%.
6. Abrasion Resistance (ASTM C 779, 60 minutes): Maximum 0.024 in. (0.061 cm).
7. Sulfate Resistance (ASTM C 1012): 0.15% maximum expansion after 14 weeks.
8. Shall meet all current requirements for "Rapid Hardening" repair materials per ASTM C 928.

PART 2 - PRODUCTS

2.01 Materials

- A. Rapid Strength Repair Mortar: "EMACO® T430" by Master Builders, Inc., a fast-setting, one component concrete repair and anchoring material.
- B. Aggregate (ASTM C 33): 1/4 in. to 1/2 in. (6 mm to 13 mm) rounded, non-reactive.
- C. Water: Drinkable.

PART 3 - EXECUTION

3.01 Surface Preparation

- A. Mechanically remove unsound concrete to the limits indicated on the drawings.
- B. Remove at least 1/4 in. (6 mm) of existing concrete facing and continue removal as required to expose sound aggregate.
- C. Saw cut perimeter of the area to be repaired to a minimum depth of 1/4 in. (6 mm). Do not cut existing steel reinforcement.
- D. Where reinforcing steel with active corrosion is encountered, comply with the following:
 1. Abrasive blast reinforcing steel to remove rust and contaminants to achieve a white metal finish.
 2. If half of the diameter of the reinforcing steel is exposed, chip out behind the reinforcing to a 1/2 in. (13 mm) minimum depth.
 3. Splice new reinforcing steel to existing steel where corrosion has depleted the cross section area by 25%, as directed by the Architect/Engineer.
- E. Thoroughly clean the roughened surface and exposed reinforcement of rust, dirt, loose chips, and dust using high pressure water. Maintain substrate in a saturated, surface-dry condition.

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3.02 Aggregate Extension

- A. Use neat rapid strength repair mortar for patches less than 1 in. (25 mm) in depth or width.
- B. For patches deeper than 1 in. (25 mm), extend repair mortar by adding up to 30 lb (15 kg) of clean, sound, non-reactive, 1/2 in. (13 mm) ASTM C 33 No. 8 hard aggregate to each 55 lb (25 kg) of EMACO T430.

3.03 Mixing

- A. Comply with rapid strength repair mortar manufacturer's recommendations for water quantity and mixing procedures.
- B. Product shall not require more than 3 minutes of mixing to achieve a flowable mortar meeting the requirements of this specification.

3.04 Application

- A. Bond scrub coat: Brush a bond scrub coat of the repair mortar material mixed to its normal consistency on properly prepared substrate.
 - 1. Thoroughly scrub mixed EMACO T430 into the cleaned, saturated surface dry area with a stiff bristled brush.
 - 2. Apply bond scrub coat at a rate that it will not dry before placement of repair mortar.
 - 3. Do not retemper bond scrub coat material if it begins to set.
- B. Apply rapid strength repair mortar in patches of 1/4 in. (6 mm) or greater in depth. Place repair mortar into prepared areas from one side to the other. Work material firmly into the bottom and sides of the patch to assure good bond.

3.05 Finishing

- A. Level surface of repair mortar using a wooden float, screed, or other suitable device.
- B. Apply final finish when mortar has begun to set.

3.06 Curing

- A. Wet cure for a minimum of one day followed by the application of MASTERKURE® or MASTERKURE® 200W curing compound.
- B. Use an evaporation reducer, such as CONFILM®, as necessary to prevent premature surface drying under severe conditions.

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