BASF
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Specification for MasterEmaco® S 5440CI

MASTER® BUILDERS SOLUTIONS

MasterEmaco S 5440CI Repair Mortar

NOTES TO SPECIFIERS:

THE PURPOSE OF THIS GUIDE SPECIFICATION IS TO ASSIST THE SPECIFIER IN DEVELOPING A PROJECT SPECIFICATION FOR THE USE OF BASF BUILDING SYSTEMS' PRODUCTS. THIS GUIDE SPECIFICATION WILL NEED TO BE CAREFULLY REVIEWED FOR APPROPRIATENESS FOR THE GIVEN PROJECT AND EDITED ACCORDINGLY TO COMPLY WITH PROJECT-SPECIFIC REQUIREMENTS.

GENERAL

1.1 SUMMARY

A. Section Includes:

1. Application of form and pour concrete repair mortar with integral corrosion inhibitor for vertical and horizontal applications.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's technical data sheets and Safety Datasheet product information for each product.

B. Quality Control Submittals:

1. Provide protection plan of surrounding areas and non-cementitious surfaces.

1.3 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer Qualifications: Company with minimum 15 years of experience in manufacturing of specified products.

2. Manufacturer Qualifications: Company shall be ISO 9001:2000 Certified.

3. Applicator Qualifications: Company with minimum of 5 years' experience in application of specified products on projects of similar size and scope, and is acceptable to product manufacturer.

a. Successful completion of a minimum of 5 projects of similar size and complexity to specified Work.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Store tightly sealed materials off ground and away from moisture, direct sunlight, extreme heat, and freezing temperatures.

D. Precondition materials to 21 degrees C plus or minus 3 degrees C before mixing.

1.5 PROJECT CONDITIONS

A. Environmental Requirements:

1. Do not use products under conditions of precipitation or freezing weather. Do not apply material at temperatures below 5 degrees C or above 35 degrees C. Use appropriate measures for protection and supplementary heating to ensure proper curing conditions per manufacturer's recommendations if application during inclement weather occurs.

PRODUCTS

1.6 MANUFACTURERS

A. Subject to compliance with requirements, provide products from the following manufacturer:

BASF Australia

Construction Chemicals

11 Stanton Road

Seven Hills 2147

Customer Service: 1300227300

Internet: www.master-builders-solutions.basf.com.au

B. Specifications and Drawings are based on manufacturer's proprietary literature from BASF Construction Chemicals

1.7 MATERIALS

A. Form and pour, Structural, 1-component, high-strength, silica-fume-enhanced repair mortar with integral corrosion inhibitor for vertical and overhead applications.

1. Manufactured to be placed from 100 mm to 500 mm per lift vertically (Inside a form could the thicker depending on depth of repair consult you BASF representative for advice) and 20 mm to 500 mm horizontally.

2. Acceptable Product: **MasterEmaco S 5440CI** by BASF.

B. Properties of mixed cementitious repair materials:

1. Working Time, 21 degrees C: 45 to 60 minutes.

C. Properties of cured cementitious repair materials:

Appearance	Grey powder
Layer thickness	Min. 20mm Max. 500mm
Density	Approx. 2.2 g/cm3
Mixing water per 20kg bag	Approx. 2.2-2.5 litres
Working time	45 – 60 minutes
Application Temperature (support and material)	Between +5 and +35°C
Compressive strength - after 1 day - after 7 days - after 28 days AS 1478.2 Appendix A (Restrained)	 ≥40 MPa ≥ 50 MPa ≥ 80 MPa
E-Modulus (28 days) AS1012	~39GPa
Shrinkage	80 microstain at 56 days
Carbonation resistance EN 13295	≤ reference concrete
Resistivity	7 days 23 KOhm
	28 days 108 KOmh
	56 days 158 KOhm
Cracking tendency (I) Coutinho type ring	No cracking after 180 days
VOC Content SCAQMD Test method 304-91	≤20g/L

Hardening times are measured at 21ºC ± 2°C and 60% ± 10% relative humidity. Higher temperatures will reduce these times and lower temperatures will extend them. Technical data shown are statistical results and do not correspond to guaranteed minimal. Tolerances are those described in appropriate performance standards

EXECUTION

1.8 EXAMINATION

1.9 SURFACE PREPARATION

A. Protection: Protect adjacent Work areas and finish surfaces from damage during repair mortar application.

B. Prepare surfaces in accordance with manufacturer's instructions.

C. Ensure surfaces are clean, sound, and free of laitance, standing water, dirt, grease, oil, efflorescence, paint, curing compounds, form oils, and other surface contaminants.

D. Remove loose materials.

E. Prepare concrete substrate to fractured aggregate profile CSP 5 or greater for proper adhesion.

F. Clean exposed steel reinforcement to white-metal finish SA 2.5 or better and prime with **MasterEmaco P 5000AP** anti-corrosion coating.

G. Saw-cut straight edges along repair area perimeters minimum of 10 mm deep to avoid featheredges.

H. Repair cracks that appear in interface area of patch as directed.

I. Continue expansion and control joints through repair or as directed by Architect.

1.10 MIXING

A. Mix materials in accordance with manufacturer's instructions.

B. Only full bags are mixed. Damaged or opened bags should not be used.

C. Mix **MasterEmaco S 5440CI** with a helical paddle attached to a slow speed (300-600 rpm) helical mixer or in a forced action pan mixer for 3 minutes until a lump free, plastic consistency is achieved. Only use clean water.

D. Mixing water needed: 3.0 to 3.4 litres per 20kg bag depending upon consistency required.

E. Allow the mortar to rest for 2 - 3 minutes and then remix briefly, adjusting the consistency as required. NB: Never exceed the maximum water demand.

F. Mix no more material than can be placed in 45 to 60 minutes at 21 degrees C and 50 percent relative humidity.

1.11 APPLICATION

A. Apply and cure repair mortar in accordance with manufacturer's instructions.

B. Application:

1. The prepared substrate should be pre-soaked, preferably for 24 hours, but at least 2 hours before applying **MasterEmaco S 5440CI** to obtain saturated surface-dry (SSD) with no standing water.

2. For improved build thicknesses or when working on large areas, apply a slurry coat bond of the **MasterEmaco S 5440CI** (mix 1:1 with clean water). Alternatively a bonding coat of **MasterEmaco P 5000AP** can be applied.

3. Place repair mortar and key-in and compact thoroughly to secure bond. **MasterEmaco S 5440CI** can be hand or trowel applied and can be applied by wet spray (ask your BASF representative for details).

4. Apply repair mortar in lifts of 5 mm to 30 mm.

5. Avoid featheredging. For optimum mechanical bond on successive lifts, thoroughly score each lift and allow reaching initial set before next layer is applied.

6. Smoothing with a trowel or finishing by float or sponge can be done as soon as the mortar has begun to stiffen, typically after approximately 45 - 60 minutes at 20°C.

7.

8. Trowel repair mortar to desired finish after initial set.

9. In these environmental conditions, **MasterEmaco S 5440CI** can be over-coated, after approximately 48 hours, with **MasterProtect** water based acrylic coatings as required. NB: At lower temperatures and/or higher humidity these times will be extended

C. Curing:

1. Damp cure for 3 days.

2. Use appropriate curing compound if surface cannot be damp cured such as MasterKure 250.

1.12 PROTECTION

A. Protect repair mortar from damage during construction.

B. Protect from freezing for minimum of 24 hours after application.

END OF SECTION

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