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Maintenance of
Concrete

Technical Data Guide

MasterEmaco® N 300 CI

Surface-renovation mortar with integral corrosion inhibitor

FORMERLY EMACO® R300 CI

PACKAGING

55 lb (25 kg) polyethylene-lined bags

YIELD

0.43 ft³ per 55 lb bag
(0.013 m³ per 25 kg bag)

STORAGE

Store in unopened containers in a cool, clean, dry area

SHELF LIFE

9 months when properly stored

VOC CONTENT

0 g/L less water and exempt solvents

DESCRIPTION

MasterEmaco N 300 CI is a one-component thixotropic polymer-modified cement-based profiling mortar with an integral corrosion inhibitor. It is used for leveling or resurfacing distressed concrete both interior and exterior. It is shrinkage compensated, fast setting, and chloride and carbon resistant.

PRODUCT HIGHLIGHTS

- Very low chloride permeability and an integral corrosion inhibitor protects reinforcing steel
- Sprayable so it reduces labor requirements
- Only requires the addition of potable water
- Low modulus of elasticity for improved compatibility for surface renovation
- Versatile for use on vertical and overhead surfaces or horizontal surfaces with foot traffic
- Early strength gain so it can be ready for pedestrian traffic in 6 hours
- Polymer modification improves adhesion and provides increased freeze/thaw stability
- Shrinkage compensated and thus reduces stress at bondline

APPLICATIONS

- Interior and exterior
- Vertical and overhead
- Above grade
- Spalls or holes in concrete
- Deteriorated edges

SUBSTRATES

- Concrete
- Masonry

HOW TO APPLY

SURFACE PREPARATION

1. Substrate must be structurally sound and fully cured (28 days).
2. Saw cut the perimeter of the area being repaired into a square with a minimum depth of ¼" (6 mm).
3. The surface to be repaired must be clean, free of laitance and saturated surface-dry (SSD) following ICRI Guideline no. 310.2 to permit proper bond.

REINFORCING STEEL

1. Remove all oxidation and scale from the exposed reinforcing steel in accordance with ICRI Technical Guideline No. 310.1R.
2. For additional protection from future corrosion, coat the prepared reinforcing steel with MasterProtect P 8100 AP.

MIXING

1. Precondition material to 70° F ±5° (21° C ±3°) before mixing.
2. Use a slow-speed drill (400–600 rpm) with a Jiffy-type paddle or an appropriately sized mortar mixer. Pour approximately 90% of the mix water into the container, then slowly charge the mixer with the bagged material. Add the remaining mix water, as required, to obtain desired consistency. Mix 3–5 minutes to achieve a homogeneous mixture. Do not mix longer than 5 minutes.

Technical Data

Composition

MasterEmaco N 300 CI is a blend of cement, graded aggregate, dry polymer, and set-control additives.

Test Data

PROPERTY	RESULTS	TEST METHOD
Drying shrinkage , %, at 28 days	0.10	ASTM C 157, modified ¹
Modulus of elasticity , psi (GPa), at 28 days	2.7 × 10 ⁶ (18.6)	ASTM C 469
Rapid chloride permeability , coulombs, at 28 days	1,087	ASTM C 1202 / AASHTO T 277
Freeze/thaw resistance , % RDM, at 300 cycles	93.7	ASTM C 666, Procedure A
Scaling resistance , 50 cycles	None	ASTM C 672
Abrasion resistance		ASTM C 779A
Duration	Depth of wear, in (mm)	
30 min	0.038 (0.97)	
60 min	0.065 (1.65)	

	1 Day Psi (MPa)	7 Day Psi (MPa)	28 Day Psi (MPa)	
Direct tensile bond strength	150 (1.0)	175 (1.2)	200 (1.4)	ACI 503R, Appendix A
Direct shear bond strength	150 (1.0)	250 (1.7)	300 (2.1)	Michigan DOT
Slant shear bond strength	750 (5.2)	1,750 (12.1)	2,100 (14.5)	ASTM C 882, modified ²
Splitting tensile strength	350 (2.4)	450 (3.1)	550 (3.8)	ASTM C 496
Flexural strength	550 (3.8)	650 (3.8)	1200 (8.3)	ASTM C 348

	6 Hour Psi (MPa)	1 Day Psi (MPa)	7 Day Psi (MPa)	28 Day Psi (MPa)	
Compressive strength	350 (2.4)	2,000 (13.8)	5,000 (34.6)	7,000 (48.3)	ASTM C 109

¹ICRI Guideline No. 03733, 1 by 1 by 10" (25 by 25 by 250 mm) prism, air cured.

²No epoxy-bonding agent used; air cured according to ASTM C 1042.

Results were obtained when material was mixed with 0.8 gallons (3.0 L) of water per bag and cured at 70° F (21° C). Expect reasonable variations, depending upon mixing equipment, temperature, application methods, test methods, and curing conditions.

3. For vertical and overhead applications add 0.75–0.80 gallons (2.8–3.0 L) of potable water per 55 lb (25 kg) bag of MasterEmaco N 300 CI.
4. For horizontal applications add 0.80–0.90 gallons (3.0–3.4 L) of potable water per 55 lb (25 kg) bag of MasterEmaco N 300 CI.

APPLICATION

1. Dampen the surface with potable water; it must be saturated surface-dry (SSD) with no standing water.
2. With a gloved hand, scrub a small quantity of mixed material into the SSD substrate. Thoroughly key in and work the material throughout the cavity to promote bond. Do not apply more of the bond coat than can be covered with mortar before the bond coat dries.
3. Apply material in lifts of ¼" (6 mm) for horizontal and ½" (12 mm) for vertical. Avoid featheredging. For optimum mechanical bond on successive lifts, thoroughly score each lift and allow to reach initial set before the next layer is applied. Placement time is 30 minutes at 70° F (21° C) and 50% relative humidity.
4. Finish by hand only, using a wooden, plastic, or sponge float.
5. The recommended application range of MasterEmaco N 300 CI is from 40 to 90° F (4 to 32° C). Follow ACI 305 and 306 for hot or cold weather guidelines.

CURING

Cure with an approved water based curing compound compliant with ASTM C 309 or preferably ASTM C 1315. If the repair area will receive a coating, wet curing is recommended.

CLEAN UP

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

FOR BEST PERFORMANCE

- Do not bridge moving cracks or joints.
- Do not overwork material
- Do not add plasticizers, accelerators, retarders, or other additives.
- Do not extend with aggregate.
- Bonding agents are recommended for large areas as well as permanently damp areas.
- Protect from freezing for 24 hours after application.
- Allow mortar extra time to harden at temperatures below 50° F (10° C).
- Protect repairs from direct sunlight, wind, and other conditions that could cause rapid drying of material.
- Do not use solvent-based curing compounds.
- Do not use in applications where product will be in a continuous wet or immersed condition.
- Do not use in sulfate-containing environments.
- For professional use only; not for sale to or use by the general public.
- Make certain the most current versions of product data sheet and SDS are being used; visit www.master-builders-solutions.basf.us to verify the most current versions.
- Proper application is the responsibility of the user. Field visits by BASF personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

HEALTH, SAFETY AND ENVIRONMENTAL

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