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Maintenance of
Concrete

Technical Data Guide

MasterEmaco® N 424

Fast-setting cement-based repair mortar

FORMERLY EMACO® GP

PACKAGING

50 lb (22.6 kg) polyethylene-lined bags
60 lb (27.2 kg) plastic pails

YIELD

0.45 ft³ per 50 lb bag
(0.013 m³ per 22.6 kg bag)

0.54 ft³ per 60 lb pail
(0.015 m³ per 27.2 kg pail)

STORAGE

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

SHELF LIFE

12 months when properly stored

VOC CONTENT

0 g/L less water and exempt solvents

DESCRIPTION

MasterEmaco N 424 is a general purpose, fast-setting, nonsag cement-based repair mortar for small repairs on vertical, horizontal, and overhead surfaces.

PRODUCT HIGHLIGHTS

- Non-sag consistency able to be placed in 1" (25 mm) thick lifts
- Fast setting
- Only requires the addition of potable water
- Can be mixed with MasterEmaco A 660 to increase high-performance properties

APPLICATIONS

- Interior and exterior
- Vertical and overhead
- Non-traffic-bearing horizontal
- Above and below 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.

Technical Data

Composition

MasterEmaco N 424 is a proprietary mix composed of cement, graded silica, calcium sulfate, fillers, and additives.

Test Data

MasterEmaco N 424 modified with MasterEmaco A 660 diluted with water in a 1 to 3 ratio at 3.75 qts (3.5 L) per 50 lb (22.6 kg) bag.

PROPERTY	RESULTS	TEST METHOD
Initial set , min	10–15	ASTM C 807, modified
Final set , min	20–30	ASTM C 807, modified
Density , lb/ft ³ (g/cm ³)		ASTM C 138
Wet	128–133 (2.05–2.12)	
Cured	125–131 (2.00–2.10)	Lab Method
Compressive strength , psi (MPa)		ASTM C 109
1 day	2,700 (18.9)	
7 days	4,000 (28)	
28 days	4,800 (34)	
Flexural strength , psi (MPa)		ASTM C 348
7 days	680 (4.7)	
28 days	990 (6.9)	
Tensile strength , psi (MPa)		ASTM C 190
1 day	210 (1.47)	
7 days	580 (4.06)	
28 days	830 (5.81)	
Modulus of elasticity , psi (MPa)		ASTM C 469
28 days	2.18×10^6 (1.5×10^4)	
Freeze/thaw resistance , % weight loss at 300 cycles	4.5	ASTM C 666, Method A
Scaling resistance , rating after 50 cycles	1	ASTM C 672
Water-vapor transmission , perms	18.6	ASTM E 96
Coefficient of thermal expansion , linear, in/in/° F	2.77×10^{-6}	ASTM C 531
Surface burning characteristics		ASTM E 84
Smoke	5	
Flame spread	0	
Rating	Class 1	

Test results are averages obtained under laboratory conditions at 70° F (21° C) and 50% rh. Reasonable variations can be expected.

MIXING

1. Precondition material to 70° F ±5° (21° C ±3°) before mixing.
2. Product can be mixed with water only, or with a water and MasterEmaco A 660 mixture to enhance its properties. Prepare a mixture of 1 part MasterEmaco A 660 to 3 parts water. To improve bonding, MasterEmaco A 660 may be mixed 1 to 1 with water.
3. Add 3 quarts (2.8 L) of water or water and MasterEmaco A 660 mixture to a clean container. Gradually add powder while mixing at low speed to obtain a uniform, lump-free consistency. Mechanically mix with slow-speed drill and mixing paddle at 400–600 rpm or use an appropriately sized mortar mixer.
4. Mix for 2–3 minutes. Do not overmix. Add up to ¾ quart (0.7 L) of water or water and MasterEmaco A 660 mixture, only if needed for workability. Do not exceed 3.75 quarts (3.5 L) of liquid per 50 lb (22.6 kg) bag or 4.5 quarts (4.23 L) per 60 lb (27 kg) pail.
5. For applications exceeding the above recommendations, extend MasterEmaco N 424 with up to 15 lbs (6.8 kg) of washed, graded, surface saturated-dry (SSD) aggregate per 50 lb (22.6 kg) bag. When extended, up to 3 50 lb (22.6 kg) bags of MasterEmaco N 424 can be used at once.

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 ½–1" (3–25 mm). 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 10–15 minutes at 70° F (21° C) and 50% relative humidity.
4. Trowel, shave or shape material to the desired finish after initial set.
5. The recommended application range of MasterEmaco N 424 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

- Maximum single lift recommendation is 1" (25 mm) on vertical surfaces and ½" (13 mm) overhead.
- Not intended for continuous contact with acid or sulfate-containing water. Very soft water will have an adverse effect on performance.
- Over-mixing can reduce density, strength, and durability.
- Do not bridge moving cracks or joints.
- Do not overwork material
- Do not add plasticizers, accelerators, retarders, or other additives.
- Bonding agents are recommended for large areas as well as permanently damp areas.
- Protect from freezing for 24 hours after application.
- 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

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting www.master-builders-solutions.basf.us, e-mailing your request to basfbscst@basf.com or calling 1(800)433-9517. Use only as directed.

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