



The Chemical Company

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## Technical Data Guide

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Maintenance  
of Concrete

# MasterSeal® 590

One-component, cement-based, fast-setting  
water-stop repair mortar

FORMERLY WATERPLUG®

#### PACKAGING

2 1/2 lb (1.13 kg) cans  
10 lb (4.5 kg) cans  
50 lb (22.7 kg) pails

#### YIELD

Volume: 15.6 in<sup>3</sup>/1 lb  
(254 cm<sup>3</sup>/0.45 kg)

Static cracks: 3/4" by 3/4" by 28"/1 lb  
(1.9 cm by 1.9 cm by 70 cm/0.45 kg).

#### STORAGE

Transport and store in unopened container in a cool, clean, dry area between 45° and 90° F (7° and 32° C). Keep container tightly sealed after opening to maintain shelf life freshness of unused portion of the remaining powder.

#### SHELF LIFE

1 year when properly stored

#### VOC CONTENT

0 g/L or 0 lbs/gal less water and exempt solvents.

#### DESCRIPTION

MasterSeal 590 is a one-component, quick-setting, Portland-cement-based hydraulic repair mortar that instantly stops running water through holes or cracks in concrete or masonry. It expands as it sets to lock into place even under constant water pressure.

#### PRODUCT HIGHLIGHTS

- Fast setting so it can stop running water and develops high strength quickly
- Fully hydraulic so it can set above or below water
- Shrinkage compensated so it expands to lock in place
- One component so it mixes easily with water only
- Ready to topcoat in 15 minutes with appropriate product to minimize downtime
- Durable non-metallic, non-gypsum formula to maintain volume stability over time
- MasterSeal formulation available for cold-weather applications for use in all seasons and climates
- Certified to the NSF/ANSI Standard 61 for potable water contact

#### APPLICATIONS

- Non-moving (static) cracks and holes with running water or moisture seepage
- For immersion service
- For anchoring vertical bolts
- Basements
- Foundations
- Retaining walls
- Sewers

#### LOCATIONS

- Vertical, overhead, or horizontal
- Interior or exterior
- Above or below grade

#### SUBSTRATES

- Concrete and masonry

## HOW TO APPLY

### MIXING

1. Mix MasterSeal® 590 powder with clean, potable water.
2. Use powder (neat) without adding any aggregates, chemical additives, or admixtures.
3. Add just enough water to mix rapidly by hand to a stiff, low-slump, putty consistency. Mix no longer than 30 seconds.
4. Mix only enough MasterSeal 590 that can be successfully placed within 3 minutes under normal conditions (see Temperature). Do not retemper material after initially mixing.
5. Clean mixing vessel and tools immediately after each use.

### TEMPERATURE

Cold or hot air, surface, and material temperatures will retard or quicken MasterSeal 590 setting time. Special attention must be given when both mixing and applying. The MasterSeal 590 and mixing water should feel neutral to the touch, normally 70° F (21° C). On average MasterSeal 590 will set in approximately 3-5 minutes.

### HOT WEATHER USE

1. From 86° to 100° F (30° to 37° C), MasterSeal 590 will set very quickly. Material temperature should not be above 80° F (26° C) and mixing water over 100° F (37° C); otherwise set begins immediately and structural strength lessens when applying during these extreme conditions.
2. MasterSeal 590 should always be placed within 30–60 seconds after mixing.
3. If appropriate, use ice water when mixing to slow down the setting action.

### COLD WEATHER USE

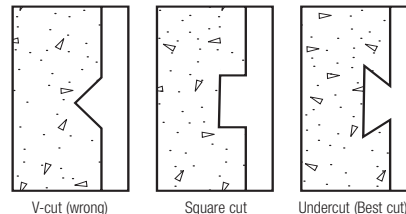
1. MasterSeal 590 should be stored at or brought up to normal room temperatures, 40 to 70° F (4 to 21° C), before mixing and use. Do not apply MasterSeal 590 if the ambient air or surface temperatures are 40° F (4° C) or less or are expected to fall below 40° F (4° C) within 12 hours after initial placement.
2. For quicker set times at normal temperatures or applications down to 40° F (4° C), MasterSeal® H may be used.

## APPLICATION

1. Pre-dampen the substrate prior to installing MasterSeal 590.
2. Place MasterSeal 590 with minimum working, kneading, or rubbing.
3. Force MasterSeal 590 repair mortar into cracks or holes and hold in place (without twisting) until set is fully achieved.
4. Just prior to final hard set, MasterSeal 590 may be “shaved” with a trowel until flush with the surrounding surface. Always shave from the center out, in the direction of the bond line.
5. If the repair area is dry at the time of placement, keep substrate damp for 15 minutes minimum, using a fine spray misting of water, before and after placement.

### SEALING JUNCTIONS

1. To seal static cracks at the junction of floors and walls, rout or cut out the crack at least 3/4” (19 mm) wide and deep, slightly undercutting if possible.
2. Flush away all loose debris, dust, and dirt with clean water.
3. Force MasterSeal 590 into the prepared crack with a round tool or margin trowel until a set is fully achieved and smooth out to form a cove at wall-to-floor junctions.
4. Keep damp for at least 15 minutes.



### STOPPING RUNNING WATER

1. To stop active water from running through concrete and masonry, cut out crack or hole to a minimum depth and width of 3/4” (19 mm). Always square cut or undercut when possible; do not “V” cut.
2. Start at top and force MasterSeal 590 into crack. In areas of great pressure, do not place MasterSeal 590 into opening immediately. Hold MasterSeal 590 in hand or on trowel until a slight warming occurs. Then press MasterSeal 590 firmly into opening.
3. Do not remove trowel or hand pressure too soon so as to provide some confinement to MasterSeal 590 expansion during its set. Do not twist MasterSeal 590 during placement or disturb during set time (5 minutes).
4. After placement to stop the active water flow, carefully cut and “trowel shave” the patch level with the surrounding surface.

### SEALING LEAKS IN JOINTS AND CRACKS

1. To stop leaking mortar joints or static cracks in below-grade masonry and concrete walls, cut out defective mortar joints or cracks to a minimum width and depth of 3/4” (19 mm). Undercut when possible.
2. Force MasterSeal 590 into opening and keep damp for at least 15 minutes or until a set is fully achieved.

REPAIRING CONSTRUCTION FAULTS

1. For patching holes and voids, etc., in concrete walls, remove all tie wires and wood or steel separators by cutting back from surface to a minimum depth of 3/4" (19 mm).
2. When there is no active water present, repair mortars may be used more appropriately.

ANCHORING HARDWARE

1. To anchor steel bolts or posts in vertical concrete or masonry, drill a hole deep enough to properly secure bolt or post and large enough so there is at least 1/2" (13 mm) on all sides of bolt or post.
2. Fill hole with MasterSeal 590 and tamp so that entire hole is full. Immediately center bolt or post over hole and force into the putty-like MasterSeal 590.
3. Tamp MasterSeal 590 firmly around bolt or post; keep continuously moist for 15 minutes.
4. Apply no pressure or stress to bolt or post for a minimum of 5 hours after placement.

Technical Data

Composition

MasterSeal® 590 is a proprietary mix composed of cement, graded silica, calcium hydroxide, fillers, and additives.

TOPCOATING

1. Cured MasterSeal 590 repairs can be topcoated with MasterSeal® 581 or MasterSeal® 584 (see Form Nos. 1019906 and 1019908), both modified with MasterEmaco® A 660 (see Form No. 1019073), as soon as an initial set is reached.
2. Cured MasterSeal 590 repairs can also be topcoated with various alkali-resistant acrylic coatings or used in conjunction with MasterProtect® HB 400, MasterProtect® HB 200 and Thorosheen® (see Form Nos. 1019100, 1019101, and 1019910).
3. MasterSeal 590 may also be used with preformed waterproof sheet membranes after approximately 6-7 days cure.

CLEAN UP

Clean tools and equipment immediately with water.

FOR BEST PERFORMANCE

- Do not apply to frozen or frost-covered surfaces.
- Do not apply to dynamic (moving) cracks.
- Do not use to fill expansion joints or control joints.
- Do not remix (retemper) hardened material.
- Always Pre-Dampen the substrate prior to placing MasterSeal 590.
- Do not use as a surface-applied coating or as a parging material.
- Do not fill voids greater than 30 in<sup>3</sup> (490 cm<sup>3</sup>) in a single lift.
- Do not use if hard lumps have developed in the powder.
- Make certain the most current versions of product data sheet and MSDS are being used; go to [www.thoroproducts.com](http://www.thoroproducts.com) to verify the most current version.
- 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.

Test Data

PROPERTY	RESULTS	TEST METHODS
<b>Compressive Strength, psi (MPa)</b>		ASTM C 109
20 min – 120 min	1,800 (12.4)	
1 day	4,000 (27.6)	
7 days	5,000 (34.5)	
28 days	5,500 (37.9)	
<b>Tensile Strength, psi (MPa)</b>		ASTM C 190
7 days	300 (2.1)	
28 days	350 (2.4)	
<b>Flexural Strength, psi (MPa)</b>		ASTM C 348
7 days	600 (4.1)	
28 days	1,500 (10.3)	

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

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#### HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Material Safety Data Sheets and product label information for this product prior to use. The MSDS can be obtained by visiting [buildingsystems.basf.com](http://buildingsystems.basf.com), e-mailing your request to [basfbcst@basf.com](mailto:basfbcst@basf.com) or calling 1(800)433-9517. Use only as directed.

**For medical emergencies only,  
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