

BONSAL® F-77 Construction Grout is a nonshrink, nonmetallic structural Hydraulic Cement for high strength grouting.

## FEATURES AND BENEFITS:

- Meets ASTM C 1107 Packaged Dry, Hydraulic - Cement Grout (Nonshrink)
- Noncorrosive, Will Not Attack Reinforcement
- Nonshrink, Per ASTM C-1107
- Nonmetallic, Non-Staining, Gray Color
- Meets Corps of Engineers Specification CRD-C 621
- Dry Pack, Plastic, or Flowable Consistency
- Pumpable for Easy Placement
- Super Plasticized for Improved Strength

## USES:

### Grouting Of

- Concrete - poured in place, precast, tilt-up and prestressed
- Heavy Machinery
- Steel Bearing Plates
- Sole Plates
- Concrete Columns
- Anchor Bolts
- Dowel Rods
- Reinforcing Steel in Block Cells

## Safety Procedures:

Read and understand the Material Safety Data Sheet (MSDS) before using this product. **KEEP OUT OF THE REACH OF CHILDREN.**

Refer to: ACI 351.R-99 Report on Grouting between Foundations and Bases for Support Equipment and Machinery for important information and recommendations.

## PREPARATION:

Remove all unsound concrete, grease, oil, paint, and any other foreign material that will inhibit performance. Prior to grout placement, all surfaces must be clean and saturated with water for 24 hours. Remove excess water before placing the grout. Provide air relief holes where necessary if grouting is beneath large plates.

### Suggestions in Form Work

Wood form work or other absorbent forms should be coated with a form release oil to prevent grout adherence and water absorption. Design form work to facilitate rapid, continuous and complete filling of the space to be grouted. Use methods that will enable the grout to flow by gravity between the surfaces and keep the grout in full contact with these surfaces until it has hardened.

## MIXING:

Add only clean water. The water quantities shown are approximate and may vary slightly with type of equipment and application conditions.

Water demand and mix temperature must be determined using standard test methods for consistency and temperature measurement at the time of application.

### Desired Grout Consistency:

Flowable (Pumping Consistency), 50 lbs. (22.7 kg) Grout, approximately 1.1 Gallon (4.2 L) Water will

Plastic (Trowel Consistency), 50 lbs. (22.7 kg) Grout, approximately 1.0 Gallon Water (3.8 L)

## PLACEMENT:

Use a mixer large enough to permit continuous placement before any part of the grout has set. Place the grout quickly. Rodding the grout lightly will help move material. Avoid vibration which can cause bleeding and segregation. Shut down nearby machines.

The Air, Mix & Substrate temperatures should all be between 40° F (4.4°C) to 90°F (32.2°C).

## CURING:

BONSAL F-77 Construction Grout can be exposed under normal weathering conditions. Forms may be removed as soon as the grout reaches it's final set. Protect from freezing for a minimum of 48 hours after placement.

ACI 308 - Standard Practice for Curing Concrete

## TECHNICAL DATA (Typical Values):

	<u>Plastic</u>	<u>Flowable</u>
<u>Consistency of Flow</u>	115%	140%

### Compressive Strength

	<u>Plastic</u>	<u>Flowable</u>
ASTM C 942		
24 hours	3,400 psi (23.4 Mpa)	2,200 psi (15.1 Mpa)
3 days	6,700 psi (46.2 Mpa)	6,500 psi (44.8 Mpa)
7 days	7,800 psi (53.7 Mpa)	7,400 psi (51.0 Mpa)
28 days	9,000 psi (62.0 Mpa)	8,800 psi (60.6 Mpa)

## TECHNICAL DATA (Typical Values):

<u>Set Time</u>	<u>Plastic</u>	<u>Flowable</u>
ASTM C 191		
Initial	4:00 hrs.	5:00 hrs.
Final	6:00 hrs.	7:00 hrs.

### Consistency of Flow

ASTM C 1107	115%	140%
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### Volume Change, % Expansion

ASTM C 827		
At final set	+0.40	+0.20
ASTM C 1090		
3 days	+0.07	+0.05
7 days	+0.07	+0.05
14 days	+0.07	+0.05
28 days	+0.07	+0.05

## LIMITATIONS:

- DO NOT mix more than can be placed in 15 minutes.
- DO NOT retemper.
- DO NOT add excessive amounts of water.
- DO NOT add any other materials other than clean potable water.
- DO NOT apply on substrates that are frozen.

## COVERAGE:

1 bag =0.45 cu. ft. (12.7 L)

## PACKAGING:

50 lb.(22.7 kg) multiply bag

## SHELF LIFE:

One year from date of manufacture.

## DISPOSAL:

Comply with all applicable local, state and federal regulations for disposal of unusable or contaminated materials. Dispose of packaging/containers according to local, state and federal regulations.

### **WARNING: MAY BURN OR IRRITATE EYES AND SKIN**

Avoid contact with eyes and skin. This product contains hydraulic cement. When mixed with water it results in a solution that is highly alkaline and may burn or irritate the eyes or skin. Wear safety glasses or goggles, protective clothing, shoes and gloves. Do not take internally. Avoid breathing dust. This product contains crystalline silica. Prolonged exposure to crystalline silica dust is known to cause lung cancer or delayed lung injury, including silicosis. Take measures to eliminate or control dust. For prolonged exposure to dust wear a respirator approved for protection against crystalline silica dust.

Crystalline silica has been classified by the state of California, IARC and NTP as a carcinogen. First aid. If swallowed drink one or two glasses of water to dilute. Do not induce vomiting unless directed to do so by medical personnel. Get immediate medical attention. In case of eye contact, flush eyes thoroughly with clean water for a minimum of 15 minutes and get prompt medical attention; for skin contact wash with soap and water. Read the MSDS prior to use. For additional information call Bonsal American at 704-525-1621 or CHEMTREC at 800-424-9300 or 703-527-3887 outside of the USA.

Warning: If you scrape, sand or remove old paint, you may release lead dust. Lead is toxic. Exposure to lead dust can cause serious illness such as brain damage, especially in children. Wear a NIOSH approved respirator. Clean up carefully with a HEPA vacuum and a wet mop. Find out how to protect yourself and your family by contacting the National Lead Information Hotline at 1-800-424-LEAD or log on to [www.epa.gov/lead](http://www.epa.gov/lead). Warning Label 1: Hydraulic cement products, Rev. Feb 2004

**LIMITED 1 YEAR PRODUCT WARRANTY FROM DATE OF MANUFACTURE:** Bonsal American warrants that this product and the materials used therein meet or exceed the applicable standards listed and enforced at the time of manufacture. Bonsal American will replace any product or part which proves defective due to quality of ingredients used or due to the manufacturing process itself. This Warranty shall apply only if the product is used in strict accordance with applicable specifications and instructions provided by Bonsal American for its use, and Bonsal American shall not be liable otherwise. Replacement of any defective product, or, at Bonsal American's option, refund of the purchase of any defective product shall be the buyer's sole remedy under this Warranty, and Bonsal American shall in no event be liable for any damages in excess of the purchase price of the defective product. **BONSAL AMERICAN SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES.**

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