



VO Repair Mortar

BONSAL® V.O. Repair Mortar is a single component, hydraulic cement mortar that contains a corrosion inhibitor. It is designed for vertical and overhead repair of cavities up to 2 inches in thickness or depth. It is a high strength self-curing, water resistant repair mortar that bonds well to existing substrates and remains resistant to freeze-thaw cycles. VO Repair Mortar was specifically designed for use on vertical and overhead surfaces without the need for formwork.

FEATURES AND BENEFITS:

- Contains corrosion inhibitor
- Self Curing
- Able to build up to 2 inches overhead repairs without formwork.
- Easily mixed one component product
- Easy finishing
- Low shrinkage
- High bond strength
- Freeze-thaw resistant
- Contains no added chlorides
- Water resistant

USES:

Repair of Concrete

- Overhead Beams
- Parking Garage Ceiling
- Balconies
- Poured in Place, Precast, Tilt Up
- Concrete Walls
- Tunnels
- Manholes

Safety Procedures:

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

PREPARATION:

Evaluation of the substrate by a qualified engineer, architect or contractor is recommended. Clean area and remove all unsound concrete, grease, oil, paint, and any other foreign materials that will inhibit performance. Slick or sealed surfaces must be thoroughly roughened. Refer to:

- ASTM D 4259 [Abrading Concrete](#)
- ICRI Guidelines 03730 [Surface Preparation Guidelines for Repair of Deteriorated Concrete Resulting From Reinforcing Steel Oxidation](#)
- ACI 201.1R [Guide for Making a Condition Survey of Concrete in Service](#)

PRIMING:

Saturate area to be repaired with clean water, leave no standing water. Mix a slurry consisting of 2 parts by volume of VO Repair Mortar with 1 part by volume clean water. Using a mason's brush, scrub the slurry thoroughly into the substrate filling all voids and pores. This slurry should not be allowed to dry prior to application of VO Repair Mortar.

MIXING:

In a clean container blend thoroughly 4 1/2 quarts (4.2 L) of clean water with 50 lbs. (22.7 kg) of VO Repair Mortar. For best results add the VO Repair Mortar to the water. This is most easily done by adding the water to a five gallon bucket and then adding in the dry material. Using a hand held drill with mixing paddle, mix the VO Repair Mortar and the water for about 2 minutes. Mixing VO Repair Mortar by hand is not recommended. VO Repair Mortar sets quickly. It is difficult to mix and apply more than about 25 lbs. at one time.

PLACEMENT:

The Air, Mix & Substrate temperatures should all be between:

40° F (4.4° C) to 90° F (32.2° C)

After mixing, apply a bed coat of BONSAL V.O. Repair Mortar in a thickness sufficient to completely cover the substrate. Use enough pressure to ensure complete contact with substrate. After applying the bed coat, but prior to drying, additional material can be applied to reach the desired thickness. Work from the edge of the repair to the center, on large patches (overhead) it may be desirable to over fill the patch, then after initial set, (but before final set) shave the patch to desired proportions. Finish by sponge floating. Do not over work the material, minimal troweling should be required with BONSAL V.O. Repair Mortar.

As a rule of thumb, the smaller the cavity dimensions, the thicker the application per lift. It is possible to place up to 2" (50 mm) thickness.



Title: Applicable sections of Divisions 2, 3 & 4
Sub-Title: One component, Vertical & Overhead, Polymer Modified rapid hardening cementitious repair mortar

INSTALLATION:

While slurry is still damp, trowel apply BONSAL V.O. Repair Mortar. Apply with either a gloved hand or a trowel. When trowel applying the mortar, start from the outside edge and work in, carefully compacting the material toward the center of the repair area. For vertical surfaces work in lifts of up to 1 inch (25 mm). Overhead lifts should be 1/2 inch (13 mm) to 3/4 inch (19 mm). Good compaction of the material is necessary to assure product performance.

CURING:

No special curing required. Protect freshly placed material from severe weather (low humidity, high temperatures, freezing, high winds, rain) using standard concrete practices.

TECHNICAL DATA: (Typical Results)

<u>Length Change</u>	<u>Percent</u>
ASTM C 157	
Air Cured 28 days	0.1%

<u>Compressive Strength</u>	
ASTM C 109	
1 day	2,500 psi
7 days	4,000 psi
28 days	5,000 psi

<u>Set Time</u>	
ASTM C 191 (vicat)	
initial	14 minutes
final	18 minutes

LIMITATIONS:

- **DO NOT** apply when air or substrate temperature is below 40°F (4.4°C) or above 90°F (32.2°C).
- **DO NOT** retemper after 5 minutes of mixing.
- **DO NOT** over trowel.
- **DO NOT** apply over substrates that are frozen.
- **DO NOT** add or mix anything other than clean (potable) water with this product.
- **DO NOT** add excessive amounts of water.
- **DO NOT** apply over concrete cured less than 7 days.

WARNING: Cracks in the material may reappear due to structural faults in the construction itself. The effectiveness of any repair depends on sound structures, proper evaluation, preparation, application and maintenance.

COLORS:

Gray

YIELD:

	Yields
50 lb. bag (22.7 kg)	.49 cubic ft. (.014m ³ liters) or 24 sq. ft. at 1/4" thick (2.2 m ²) at (6.3 mm)thick

PACKAGING:

50 lb.(22.7 kg) Multi-Ply 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.

Warning Label 1: Hydraulic cement products, Rev. Feb 2004

Technical Service
1-800-334-0784

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.**

This Warranty constitutes the sole warranty given by Bonsal American in connection with this product, and Bonsal American has authorized no person to make or give any other warranties or representation, oral or written on its behalf. **IN PARTICULAR, THERE ARE NO IMPLIED WARRANTIES, INCLUDING WITHOUT EXCEPTION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** No modification of this Warranty in favor of any buyer shall be valid unless given in writing and signed by an officer of Bonsal American.



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