

Rapid Patch - VR

BONSAL® Rapid Patch - VR is a quick setting, high early strength concrete repair material.

FEATURES AND BENEFITS:

- Open to Traffic in Two Hours
- Exceeds the Requirements of ASTM C 928 for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
- Reduces Downtime With Rapid Repairs
- DOT Approved in some states check with Technical Services for your specific state

USES:

Repair of Horizontal Concrete

- Highways and Bridges
- Airport Runways
- Garage Parking Decks
- Warehouse Floors

PREPARATION:

Evaluation of the substrate by a qualified engineer, architect or contractor using means that determine the cause of deterioration is strongly recommended. Particular attention is to be given but not limited to chloride penetration, corrosion of steel galvanic activity, materials selection and compatibility, waterproofing, constructibility, quality assurance and methods of application and maintenance by the owner. 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 4258 Surface Cleaning Concrete for Coating
- ASTM D 4259 Abrading Concrete
- ICRI Guideline 03730 Surface Preparation Guidelines for Repair of Deteriorated Concrete Resulting from Reinforcing Steel Oxidation
- ICRI Guideline 03733 Guide for Selection and Specifying materials for Repair of Concrete Surface
- ICRI Guideline No. 03732 Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays
- ASTM D 4580 Measuring Delaminations in Concrete Bridge Decks by Sounding
- ACI 201.1R Guide for Making a Condition Survey of Concrete in Service
- ACI 201.3R Guide for Making a Condition Survey of Concrete Pavements
- ICRI Surface Preparation Guidelines for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Oxidation

PREPARATION (Cont.):

- ACI 201.1R Guide for Making a Conditions Survey of Concrete in Service
- ACI 201.3R Guide for Making a Condition Survey of Concrete Pavements

The area should be back cut or have a vertical edge by sawing or other suitable means that will not cause damage to surrounding concrete.

If the product is being used on a questionable substrate, make a small test area. Examine the patch after several days to determine if a good bond has been obtained. Before making repairs, thoroughly saturate the area with water (this may require several applications of water). Remove excess surface water and puddles prior to use.

MIXING:

Mix Rapid Patch - VR in a concrete or mortar mixer, in a bucket by hand mixing or with a slow speed drill and mixing blade. Measure approximately 3 quarts of water and add to the mixer, then add the Rapid Patch - VR. Mix at a medium speed (450 rpm) for 3 minutes. Rapid Patch - VR may be used for repairs from 1/2 inch (1.27 cm) to 8 inches (20.3 cm) in thickness. For repairing areas greater than 1 1/2 inches (3.8 cm) deep, Rapid Patch - VR may be extended with up to 50% by weight of 3/8 inch (0.95 cm) aggregate meeting AASHTO M 43, Size No. 7 requirements.

PLACEMENT:

The working time of Rapid Patch - VR is approximately 10 minutes. Working time is shortened as the temperature increases. Materials and the substrate to be repaired, must be above 40°F (4.4°C) during placement. The surfaces may be broomed or textured approximately 20 minutes after placement.

Fill the area to full depth and consolidate by rodding during the placement. The surface may be broomed or textured approximately 20 minutes after placement.

Placement Temperature

	Minimum	Maximum
Substrate	40°F (4.4°C)	90°F (32.2°C)
Mix	50°F (10°C)	80°F (26.6°C)
Air	40°F (4.4°C)	90°F (32.2°C)

CURING:

Forms may be removed as soon as the product is firm and cannot be penetrated by a pointed masonry trowel. Prevent evaporation by keeping the exposed surfaces wet for several hours.

Rapid Patch - VR can be exposed under normal conditions. For installations where acids and sulfates are present, a protective coating is required.

Cure per Portland Cement Association publication Design and Control of Concrete Mixes (EB001.12T) and/or American Concrete Institute 308 publication Recommended Practice for Curing Concrete.

TECHNICAL DATA:

Set Time

ASTM C 266

Initial Set	20 minutes
Final Set	30 minutes

Compressive Strength

ASTM C 109

3 hours air cured	3000 psi (20.6 Mpa)
24 hours air cured	6000 psi (41.3 Mpa)
28 days air cured	7000 psi (48.2 Mpa)

Flexural Strength

ASTM C 580

28 days air cured	800 psi (5.5 Mpa)
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Length Change Percent

ASTM C 157

Air Cured	-0.06
Moist Cured	+0.06

Resistance to Deicing Salts

ASTM C 672

(10% Calcium-Chloride Solution) 25 Cycles
2 Rating

Absorption

ASTM C 642

9.8%

Freeze-Thaw Resistance

ASTM C 666 A

300 cycles	88% Dynamic Modulus
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Flow

ASTM C 109

5 minutes	125%
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LIMITATIONS:

- **DO NOT** add excessive amounts of water.
- **DO NOT** apply when air or substrate temperature is below 40°F (4.4°C) or above 90°F (32.2°C) within 24 hours of application.
- **DO NOT** use for vertical or overhead repairs.
- **DO NOT** mix more than can be placed in 10 minutes.
- **DO NOT** retemper.
- **DO NOT** add anything other than water and recommended aggregate.

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 preparation and application.

COLORS:

Grey

COVERAGE:

50 lbs. (22.7 kg) yields .42 cu. ft. (11.8 l) (.60 cu. ft. with 20 lbs. (9.1 kg) of aggregate.)

PACKAGING:

50 lbs./22.7 kg multiply bag

SHELF LIFE:

One year from date of manufacture.

CAUTION: Contains Silicon Dioxide, Portland Cement and Calcium Hydroxide. Your skin may be sensitive to cement. Wearing rubber gloves is recommended. Avoid contact with eyes or prolonged contact with skin. In case of contact, flush thoroughly with water. For eyes, flush with clean water for at least 15 minutes and get prompt medical attention.

KEEP OUT OF REACH OF CHILDREN

Technical Assistance

Charlotte, NC

(800) 334-0784

LIMITED WARRANTY: W.R. Bonsal Company ("Bonsal") warrants that this product and the materials used therein meet or exceed the applicable standards listed and enforced at the time of manufacture. Bonsal 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 for its use, and Bonsal shall not be liable otherwise. Replacement of any defective product, or, at Bonsal's option, refund of the purchase of any defective product shall be the buyer's sole remedy under this Warranty, and Bonsal shall in no event be liable for any damages in excess of the purchase price of the defective product. **BONSAL SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES.**

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