



RAPID ROAD REPAIR WITH 50% OR 100% FIELD EXTENSION AVAILABLE REGIONALLY PRODUCT NO. 1242

DIVISION 32

Rigid Paving Repair
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PRODUCT DESCRIPTION

QUIKRETE® Rapid Road Repair® is a fast-setting, rapid-hardening mortar designed to repair concrete highways, bridge decks, concrete parking lots and concrete floors.

PRODUCT USE

QUIKRETE® Rapid Road Repair® can be used to replace sections of streets or highways, runways or taxiways of airports and other applications where quick return to usage is desired. In most cases, traffic can be resumed in less than 1 hour after patching.

QUIKRETE® Rapid Road Repair® is made from specially blended cement with carefully graded aggregates to provide a permanent patch. It also contains AR glass fibers for improved flexural performance essential for applications of severe vibration as in the repair of bridge decks. An un-fibered version of this product is also available.

SIZES

• QUIKRETE® Rapid Road Repair® - 50 lb (22.6 kg) bags

YIELD

A 50 lb (22.6 kg) bag of QUIKRETE® Rapid Road Repair® will yield 0.40 cu ft (11 L) of material.

TECHNICAL DATA

APPLICABLE STANDARDS

ASTM International

- ASTM C39/C39M Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- ASTM C78 Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
- ASTM C109/C109M Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
- ASTM C143/C143M Standard Test Method for Slump of Hydraulic Cement Concrete
- ASTM C157/C157M Standard Test Method for Length Change of Hardened Hydraulic-Cement, Mortar, and Concrete
- ASTM C191 Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle



- ASTM C531 Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
- ASTM C642 Standard Test Method for Density, Absorption, and Voids in Hardened Concrete
- ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
- ASTM C672/C672M Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals
- ASTM C882 Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete by Slant Shear
- ASTM C928 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs

PHYSICAL/CHEMICAL PROPERTIES

QUIKRETE® Rapid Road Repair®, when tested in accordance with ASTM procedures, provides typical results as listed in Table 1.

QUIKRETE® Rapid Road Repair® meets the requirements of ASTM C928 Grade R3. It can be modified to meet specific requirements of the Department of Transportation in various states.

INSTALLATION

SURFACE PREPARATION

- Remove all spalled areas and areas of unsound concrete and patching
- The hole should have a vertical edge of ½ in (13 mm) or more, formed by use of a pneumatic jackhammer or sawing. Holes should be chipped out to create a new, sound substrate
- After the chipping process is completed, the repair area must be cleaned by water blasting or other suitable method
- Dampen holes with clean water before patching. No puddles of water should be left in the hole

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MIXING

- Use approximately 6 pints (2.8 L) of potable water per 50 lb (22.6 kg) bag; sparingly add water as required to achieve a slump of 3 in to 5 in (75 mm to 125 mm). Do not exceed 7 pints (3.3 L) of water.
 - All tools and equipment used in the mixing and finishing process should be clean
 - Place water in mixer. While concrete or mortar mixer is running, add contents of bag
 - Mix 4 to 5 minutes. The mix will appear stiffer than normal concrete
 - Place in a wheelbarrow or other transporting vehicle. Place the mixture immediately after the mixing is completed
- Note - Working time is 10 - 20 minutes and will fluctuate: shorter time during severe hot weather and longer time during cold weather.

TABLE 1

TYPICAL PHYSICAL/CHEMICAL PROPERTIES OF QUIKRETE RAPID ROAD REPAIR®

Property & test	Typical values
Slump, ASTM C143	3 in to 5 in (75 mm to 125 mm)
Setting, ASTM C191	
Initial	17 - 25 minutes
Final	25 - 45 minutes
Flexural strength, ASTM C78	
4 hr	550 PSI (3.8 MPa)
1 day	900 PSI (6.2 MPa)
7 days	950 PSI (6.6 MPa)
28 days	1000 PSI (6.9 MPa)
Compressive strength, ASTM C109	
1 hr	3000 PSI (20.7 MPa)
3 hrs	3400 PSI (23.4 MPa)
24 hrs	5200 PSI (35.9 MPa)
7 days	8100 PSI (55.8 MPa)
28 days	8370 PSI (57.7 MPa)
Bond strength, ASTM C882	
1 day	2000 PSI (13.8 MPa)
7 days	2500 PSI (17.2 MPa)
Absorption, ASTM C642	5.1%
Length change, ASTM C157	
In water	+0.04%
In air	-0.04%
Coefficient of thermal expansion, ASTM C531	$4 \times 10^{-6} - 9 \times 10^{-6}$
Freeze/thaw, ASTM C666	96%
Scaling resistance, ASTM C672	Excellent

PLACING

- The hole should be filled by placing material full depth, from one end to the other to eliminate part depth lifts between batches
- Consolidate the material in the hole by vibration, hand tamping or chopping with a shovel. This is particularly important around the edges
- Screed and finish patches with hand tools to create a surface finish equivalent to the existing slab finish

CURING

No curing membranes or compounds are required. Traffic can be allowed over the patch in approximately 1 hour if the temperature is 70 degrees F (21 degrees C) or above. Cure under ambient conditions. Do not moist cure.

AGGREGATE EXTENSION

For deep patches, QUIKRETE® Rapid Road Repair® may be extended 50% with up to 25 lb (11.3 kg) of minus ½ in (13 mm) coarse aggregate per 50 lb (22.6 kg) bag. At 50% extension, the typical yield will be 0.6 cubic feet (17 L). Use well graded, good quality coarse aggregate, minus ½ in (13 mm) diameter, meeting ASTM C 33. When extended 100% with this coarse aggregate, each 100 lb (45.3 kg) of 50/50 blend will yield approximately 0.73 cubic feet (20.6 L). Extension by 100% will affect set time and reduce compressive strengths compared to data presented in Table 2. Performance and yield will be affected by the characteristics of the coarse aggregate utilized and water addition. Adjust water to achieve a slump of about 3 in to 5 in (75 to 125 mm).

TABLE 2

Rapid Road Repair® - 50% Extended¹ Typical Physical Properties

Setting time, ASTM C 191	Final 20 - 40 min.
Slump, ASTM C 143	3 in to 5 in (75 mm to 125 mm)
Compressive strength, ASTM C 39	
90 minutes	2000 PSI (13.8 MPa)
24 hours	4000 PSI (27.6 MPa)
7 days	5500 PSI (37.9 MPa)
28 days	6000 PSI (41.4 MPa)

¹ Product extended with 50% by weight minus ½ in (13 mm) diameter C33 coarse aggregate.

PRECAUTIONS

- Mix no more than can be used in 15 minutes
- During extremely hot or dry conditions, cold water should be used to maintain mix at a moderate placement temperature. Alternately, in cold weather, use hot water. In sub-freezing weather, use hot water and cover the repair with insulation blankets overnight.
- QUIKRETE Rapid Road Repair® - Extended must be properly placed in a space surrounded by sound, high quality previously hardened concrete.
- Working time is 10-20 minutes and will fluctuate: shorter during severe hot weather and longer during cold weather
- Do not subject to de-icing salts for at least 7 days after placement.

WARRANTY

The QUIKRETE® Companies warrant this product to be of merchantable quality when used or applied in accordance with the instructions herein. The product is not warranted as suitable for any purpose or use other than the general purpose for which it is intended. Liability under this warranty is limited to the replacement of its product (as purchased) found to be defective, or at the shipping companies' option, to refund the purchase price. In the event of a claim under this warranty, notice must be given to The QUIKRETE®

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Companies in writing. This limited warranty is issued and accepted in lieu of all other express warranties and expressly excludes liability for consequential damages.

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** Refer to www.quikrete.com for the most current technical data, SDS, and guide specifications*