



POLYMER MODIFIED STRUCTURAL CONCRETE – EXTENDED SET

PRODUCT NO. 1251-81

DIVISIONS 3 & 32

Structural Concrete
03 31 00
Maintenance of Concrete
03 01 00
Rigid Pavement Repair
32 01 29

PRODUCT DESCRIPTION

QUIKRETE® Polymer Modified Structural Concrete – Extended Set (60-80 minute) is a fast-setting fiber-reinforced, polymer-modified, high early strength concrete designed to build or repair highways, bridge decks, parking lots and other concrete

PRODUCT USE

QUIKRETE® Polymer Modified Structural Concrete – Extended Set is designed as a repair or overlay material for commercial applications at a thickness of 1-1/2" (38 mm) to 2 feet (610 mm). QUIKRETE Structural Concrete is DOT approved in a variety of locations throughout the country. The product proportions are identical to DOT Mix Extended except the working time has been adjusted to a minimum of 60 minutes to allow additional time to place the larger batches of product. QUIKRETE Structural Concrete is freeze-thaw durable, has low permeability to salt penetration and is shrinkage compensated. QUIKRETE Structural Concrete is available with an integral corrosion inhibitor in cases where maximum corrosive protection is desired. The addition of the corrosion inhibitor has no adverse effect on the other physical properties of the product. QUIKRETE Structural Concrete is made from specially blended fast-setting cement, fibers and carefully graded fine and coarse aggregates. The product is air-entrained and contains other additives to promote superior durability, high strength, and superior bonding ability and long working time.

SIZES

- QUIKRETE Structural Concrete - 80 lb (36.3 kg) bags
- 3000 lb (1361 kg) bulk bags

YIELD

- Each 3000 lb (1361 kg) bag will yield approximately 0.8 cu yd (0.6 M³).
- Each 80-pound (36.3 kg) bag of QUIKRETE® Structural Concrete will yield approximately 0.6 cu ft (17 L).

TECHNICAL DATA

APPLICABLE STANDARDS

ASTM International

- ASTM C 39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- ASTM C 78 Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
- ASTM C 191 Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle

- ASTM C 666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
- ASTM C 928 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
- ASTM C 1202 Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration

PHYSICAL/CHEMICAL PROPERTIES

QUIKRETE Structural Concrete, when tested in accordance with ASTM procedures, provides typical results as listed in Table 1.

INSTALLATION

SURFACE PREPARATION

All surfaces should be clean and free of foreign substances that would cause bond failure. In some cases, it may be necessary to roughen smooth surfaces or etch old ones with acid. After the preparation is completed, the repair area must be cleaned via water blasting or other suitable method. Dampen with clean water before application. No puddles of water should be left on the substrate.

MIXING

QUIKRETE Structural Concrete is designed for use with a ready mix truck or a mobile mixer, but may also be used at a smaller scale.

Ready Mix or Mobile Mixer

The product will require approximately 37.5 gal of water per 3,000 pounds of product. Add approximately 90% of the expected water then add the dry material. Adjust slump with additional water to achieve a slump of 4-7" (100-175 mm). Mix at mixing speed until a uniform product is obtained.

80# (36.3 kg) Bags

QUIKRETE Structural Concrete can be hand-mixed in a suitable mixing container, or machine mixed in a barrel-type concrete mixer or a mortar mixer. Choose the mixer size most appropriate for the size of the job to be done. Allow at least 3/4 cu ft (21 L) of mixer capacity for each 80 lb. (36.3 kg) bag to be mixed at one time. Add approximately 3 quarts (2.8 L) of clean water for each bag to the mixer. Turn on the mixer and begin adding the concrete to the mixer. If a slump cone is

available, adjust water content to produce a slump of 4-7" (100-175 mm). Mix at mixing speed until a uniform product is obtained. Do not exceed a total volume of 5 quarts (4.7 L) of water per bag.

TABLE 1
Structural Concrete Physical Properties

Setting time, ASTM C 191	Final 60 - 80 min.
Slump, inches	4-7 (100-175 mm)
Compressive strength, ASTM C 39	
3 hours	3000 psi (20.7 MPa)
24 hours	6500 psi (44.8 MPa)
7 days	7000 psi (48.3 MPa)
28 days	9000 psi (62.1 MPa)
Flexural Strength, ASTM C 78	
4 hr	600 psi (4.1 MPa)
3 day	700 psi (4.8 MPa)
Slant shear bond strength, ASTM C 928	
1 day	1500 psi (10.3 MPa)
7 days	1700 psi (11.7 MPa)
Shrinkage, ASTM C 928	
28 days in air (typical)	-0.03%
28 days in water (typical)	+0.03%
Scaling Resistance, ASTM C 672	Visual 0
Freeze-Thaw, ASTM C 666	R. D. M. 97%
Permeability, ASTM C 1202	1,100 coulombs

TEMPERATURE OF WATER

Because of the rapid setting time, special precautions must be taken as set times will fluctuate in extremely hot or cold weather. Use cold water

or water mixed with ice cubes in severely hot weather. Use hot water when mixing in severely cold weather.

CURING

QUIKRETE Structural Concrete is often placed in service within a few hours after it sets, so conventional moist curing methods are not practical. Sealing the surface with QUIKRETE Acrylic Concrete Cure & Seal – Satin Finish (#8730) after the concrete has hardened will ensure proper curing and provide an additional measure of protection against salt and water penetration. Under hot, dry and windy placing conditions, all concrete tends to lose moisture unevenly and may develop plastic shrinkage cracks. The use of sheeting, monomolecular films (either sprayed or rolled on), as well as application of a very fine fog spray of water, has been quite successful in arresting shrinkage cracking.

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® 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, MSDS, and guide specifications*