QUIKRETE HIGH PERFORMANCE Cement

FastSet™ Concrete Mix

Product No. 1587-53 (CAN)

DIVISION 3 & 32

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

PRODUCT DESCRIPTION

High Performance Cement (HPC) FastSet™ Concrete Mix (No. 1587-53) is a high performance concrete made from a special blend of fast-setting cement along with specifically graded fine and coarse aggregate designed to only require the addition of water.

PRODUCT USE

HPC FastSet™ Concrete Mix is a fast-setting, rapid hardening concrete designed to build or repair concrete driveways, highways, bridge decks, concrete parking lots, concrete floors, and sidewalks. In most cases, traffic can resume within a few hours after the concrete has set. Use at any thickness from 50 mm to 610 mm (2 in to 24 in). HPC FastSet™ Concrete Mix has less shrinkage than ordinary portland cement concrete. The addition of corrosion inhibitor has no adverse effect on the other physical properties of the product.

SIZES

25 kg (55 lb) bags

YIELD

One 25 kg (55 lb) bag of HPC FastSet™ Concrete Mix will yield approximately 11.6 L (0.41 ft^3).

TECHNICAL DATA

APPLICABLE STANDARDS

- ASTM C33 Standard Specification for Concrete Aggregates
- ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- ASTM C143 Standard Test Method for Slump of Hydraulic-Cement Concrete
- ASTM C157 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 C496 Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
- ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
- ASTM C672 Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals
- ASTM C882 Standard Specification 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
- ASTM C1583 Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)
- ICRI Guideline No. 310.2R Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair
- ACI 305R Guide to Hot Weather Concreting
- ACI 306R Guide to Cold Weather Concreting

PHYSICAL/CHEMICAL PROPERTIES

Typical results obtained for HPC FastSet™ Concrete Mix, when tested in accordance with the referenced ASTM procedures, are shown in Table 1. HPC FastSet™ Concrete Mix meets the requirements of ASTM C928 Type R3.

INSTALLATION

SURFACE PREPARATION

All surfaces should be clean and free of foreign substances including corrosion present on reinforcing steel. Remove all spalled areas and areas of unsound concrete. The appropriate personal protective equipment should be worn. The repair area should have a vertical edge of 50 mm (2 in) or more. Preparation work done on the repair area should be completed by high pressure water blast, breaker hammer, or other appropriate mechanical means to obtain an exposed aggregate surface. Refer to current ICRI Guideline 310.2R for additional surface preparation information. Saturate repair area with clean water before patching to ensure SSD condition. No standing water should be left in the repair area.

MIXING

Use approximately 2.2 L to 2.6 L of clean potable water per 25 kg (55 lb) of HPC FastSet™ Concrete Mix. Begin by using a mid-range water quantity, then adjust, if needed, to achieve a place-able consistency. The water demand of the product may vary based upon environmental conditions. Starting with the maximum quantity of water is not recommended. Add the water to the mixer first, followed by the HPC FastSet™ Concrete Mix. Mechanically mix for 4 to 5 minutes using a standard concrete or mortar mixer. Exceeding an ASTM C143 slump of 125 mm (5 inches) is not recommended. This may cause a reduction in performance of the product.

APPLICATION

Fill the repair area completely working continuously from one end to the other. Avoid partial depth fills which could lead to cold joints. Consolidate the material using hand tamping and/or chopping with a shovel. It is particularly important to compact around the edges of the forms or patches. Mechanical vibration should be avoided in areas that will be exposed to de-icing salts. After HPC FastSet™ Concrete Mix has been compacted and spread to completely fill the forms without air pockets, screed the surface and then apply a trowel or broom finish as desired. In most cases, concrete repair materials will not be an exact color match to the surrounding concrete. For best results, do not overwork the material.

CURING

No special curing methods are required. HPC FastSet™ Concrete Mix is often placed in service within a few hours after it sets, so conventional moist curing methods may not be practical. Curing compounds such as QUIKRETE® Acrylic Concrete Cure and Seal (No. 8730) provide the easiest and most convenient method of curing. Curing compounds should be applied via appropriate methods, once final set has been reached.

The application of epoxy coatings over HPC FastSet™ Concrete Mix may be done in as little as 6 hours. Consult with the epoxy coating manufacturer for their recommendations. Test a small area to evaluate epoxy performance and adhesion prior to applying full-scale.

PRECAUTIONS

When using the product in hot weather follow ACI 305R recommended practices. An example of an additional step would be using cold water when mixing in extremely hot weather. When using the product in cold weather follow ACI 306R recommended practices. Examples of additional steps would be using hot water when mixing in severely cold weather and using plastic sheeting and insulation blankets if temperatures are expected to fall below 0 °C (32 °F). For best results, do not overwork the material or mix more than can be used in 10 minutes.

SAFETY

IMPORTANT: Read Safety Data Sheet carefully before using.

WEAR IMPERVIOUS GLOVES, such as nitrile, mask, and eye protection.

DANGER: Causes severe skin burns and serious eye damage. Prolonged or repeated inhalation of dust may cause lung damage or cancer.

KEEP OUT OF REACH OF CHILDREN

TABLE 1 - TYPICAL PHYSICAL PROPERTIES

Slump, ASTM C143	
At 5 Minutes	75 mm to 125 mm (3 in to 5 in)
Compressive Strength, ASTM C39	
Age	*MPa (PSI)*
3 hours	20.7 (3000)
24 hours	34.5 (5000)
7 days	41.4 (6000)
28 days	48.3 (7000)
Setting Time, ASTM C191	
Final	25 to 45 minutes
Length Change, ASTM C157	
Age, Condition	
28 days, air	≥ -0.07 %
28 days, water	≤ 0.07 %
Split Tensile Strength, ASTM C496	
Age	*MPa (PSI)*
28 days	≥ 2.4 (350)
Slant Shear Bond Strength, ASTM C882	
Age	*MPa (PSI)*
24 hours	13.8 (2000)
7 days	17.2 (2500)
Freeze Thaw Resistance, ASTM C666	
After 300 cycles	≥ 95% Durability Factor
Scaling Resistance after 25 Cycles, ASTM C672	
Visual	< 2.0
Tensile Strength by Direct Tension (Pull Off Method), ASTM C1583	
Age	*MPa (PSI)*
28 days	≥ 1.7 (250)

WARRANTY

NOTICE: Obtain the applicable **LIMITED WARRANTY** at www.quikrete.com/product-warranty Or send a written request to Quikrete Canada Holdings, Limited, Five Concourse Parkway, Atlanta, GA 30328, USA.