

ENCLOSURE 3

CONCRETE MIX

Very Rapid Hardening Concrete



PRODUCT DATASHEET

DESCRIPTION: Rapid Set® CONCRETE MIX is a high-performance, fast-setting, multi-purpose concrete repair material. Durable in wet environments, CONCRETE MIX is a blend of Rapid Set hydraulic cement and quality aggregates. CONCRETE MIX is non-metallic and no chlorides are added. Mix CONCRETE MIX with water to produce a workable, quality concrete material that is ideal where fast strength gain, high durability and low shrinkage are desired. CONCRETE MIX sets in 15 minutes and is ready for traffic in 1 hour.*

USES: Use CONCRETE MIX for general and structural concrete repair, construction of pavements, formed work, footings, setting posts, industrial floors and machine bases. Ideal for airport and military pavement repairs. In some geographical areas, CONCRETE MIX contains an air-entraining admixture for freeze-thaw durability.

ENVIRONMENTAL ADVANTAGES: Use CONCRETE MIX to reduce your carbon footprint and lower your environmental impact. Production of Rapid Set cement emits far less CO₂ than portland cement. Contact your CTS representative for EPD, LEED values and other sustainability information.

APPLICATION: Apply CONCRETE MIX in thicknesses from 2" to 24" (5 cm to 61 cm). For thinner sections, use Rapid Set® Cement All® or Rapid Set® Mortar Mix. Not intended for extended exposure over 212°F (100°C). For overlay applications, a minimum of one test section should be prepared to evaluate the suitability of the materials and procedures.

SURFACE PREPARATION: For repairs, application surface must be clean, sound and free from any materials that may inhibit bond, such as oil, asphalt, curing compound, acid, dirt and loose debris. Roughen surface and remove all unsound material. Apply CONCRETE MIX to a thoroughly saturated surface with no standing water.

MIXING: The use of a power-driven mechanical mixer, such as a mortar mixer or a drill-mounted mixer, is recommended. Organize work so that all personnel and equipment are in place before mixing. Use clean potable water. **CONCRETE MIX may be mixed using 3.5 to 4.0 quarts (3.3 L to 3.8 L) of water per 60-lb (27.2-kg) bag for Department of Transportation projects and other critical applications.** For general purpose applications, a maximum of 4.5 quarts (4.3 L) may be used. Use less water to achieve higher strengths. For increased fluidity and workability, use Rapid Set® FLOW Control plasticizing admixture. Place the desired quantity of mix water into the mixing container. While the mixer is running, add CONCRETE MIX. Mix for the minimum amount of time required to achieve a lump-free, uniform consistency (usually 1 to 3 minutes). Do not retemper.

INSTALLATION: CONCRETE MIX may be placed using traditional construction methods. Organize work so that all personnel and equipment are ready before placement. Place, consolidate and screed quickly to allow for maximum finishing time. Use a method of consolidation that eliminates air voids. Do not wait for bleed water; apply final finish as soon as possible. CONCRETE MIX may be troweled, floated or broom finished. On flatwork, do not install in layers. Install full-depth sections and progress horizontally. To extend working time, use Rapid Set® SET Control retarding admixture or use cold mix water. Do not install on frozen surfaces. CONCRETE MIX may be applied in temperatures ranging from 45°F to 90°F (7°C to 32°C). Under dry ambient conditions, water based coatings such as latex paint can be applied after 4 hours. Solvent based and impermeable coatings such as oil based paint and epoxy can be applied after 16 hours.

OVERVIEW

Highlights:

Fast: Sets in 15 minutes, ready for traffic in 1 hour*

Durable: Formulated for long life in critical applications

Structural: For repair and new construction

Multi-Purpose: Use for concrete repair, formed work, setting posts, footings, floors, machine bases, and more

Conforms to:

ASTM: C928 R2, C387

Approved:

State (DOT) and local approvals

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03 01 30	Maintenance of Cast-in-Place Concrete
03 01 50	Maintenance of Cast Decks and Underlayment
03 01 70	Maintenance of Mass Concrete
03 33 00	Architectural Concrete - Cast-in-Place Concrete

Manufacturer:

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CURING: Water cure all CONCRETE MIX installations by keeping exposed surfaces wet for a minimum of 1 hour. Begin curing after the material starts to harden and before the surface starts to lose its moist sheen. The objective of water curing is to maintain the moist sheen on the entire surface until the product has achieved sufficient strength. When experiencing extended setting time due to cold temperature or the use of retarder, longer curing times may be required.

COLD WEATHER: Environmental and material temperatures below 70°F (21°C) may delay setting time and reduce the rate of strength gain. Lower temperatures will have a more pronounced effect. Thinner sections will be more significantly affected. To compensate for cold temperatures, keep material warm, use heated mix water, and follow ACI 306 Procedures for Cold Weather Concreting.

WARM WEATHER: Environmental and material temperatures above 70°F (21°C) may speed setting time and increase the rate of strength gain. Higher temperatures will have a more pronounced effect. To compensate for warm temperatures, keep material cool, use chilled mix water and follow ACI 305 Procedures for Hot Weather Concreting. The use of SET Control retarding admixture will help offset the effects of high temperatures.

YIELD & PACKAGING: CONCRETE MIX is available in 60-lb (27.2-kg) bags. One 60-lb (27.2-kg) bag of CONCRETE MIX will yield approximately 0.5 ft³ (0.01 m³).

SHELF LIFE: CONCRETE MIX has a shelf life of 12 months when stored properly in a dry location, protected from moisture, out of direct sunlight, and in an undamaged package.

USER RESPONSIBILITY: Before using CTS products, read current technical data sheets, bulletins, product labels and safety data sheets at www.CTSCement.com. It is the user's responsibility to review instructions and warnings for any CTS products prior to use.

WARNING: DO NOT BREATHE DUST. AVOID CONTACT WITH SKIN AND EYES. Use material in well-ventilated areas only. Exposure to cement dust may irritate eyes, nose, throat, and the upper respiratory system/lungs. Silica exposure by inhalation may result in the development of lung injuries and pulmonary diseases, including silicosis and lung cancer. Seek medical treatment if you experience difficulty breathing while using this product. The use of a NIOSH/MSHA-approved respirator (P-, N- or R-95) is recommended to minimize inhalation of cement dust. Eat and drink only in dust-free areas to avoid ingesting cement dust. Skin contact with dry material or wet mixtures may result in bodily injury ranging from moderate irritation and thickening/cracking of skin to severe skin damage from chemical burns. If irritation or burning occurs, seek medical treatment. Protect eyes with goggles or safety glasses with side shields. Cover skin with protective clothing. Use chemical resistant gloves and waterproof boots. In case of skin contact with cement dust, immediately wash off dust with soap and water to avoid skin damage. In case of skin contact with wet cement, wash exposed skin areas with cold running water as soon as possible. In case of eye contact with cement dust, flush immediately and repeatedly with clean water, and consult a physician. If wet cement splashes into eyes, rinse eyes with clean water for at least 15 minutes and go to the hospital for further treatment.

Please refer to the SDS and www.CTSCement.com for additional safety information regarding this material.

LIMITED WARRANTY: CTS CEMENT MANUFACTURING CORP. (CTS) warrants its materials to be of good quality and, at its option, will replace or refund the purchase price of any material proven to be defective within one (1) year from date of purchase. The above remedies shall be the limit of CTS' responsibility. Except for the foregoing, all warranties expressed or implied, including merchantability and fitness for a particular purpose, are excluded. CTS shall not be liable for any consequential, incidental, or special damages arising directly or indirectly from the use of the materials.

⚠ WARNING
CANCER and REPRODUCTIVE HARM - www.P65Warnings.ca.gov

TYPICAL PHYSICAL DATA

Set Time, ASTM C403

Initial set	15 minutes
Final set	35 minutes

Compressive Strength, ASTM C39

1 hour*	3000 psi (20.7 MPa)
3 hours	3600 psi (24.8 MPa)
24 hours	4500 psi (31.0 MPa)
7 days	5500 psi (37.9 MPa)
28 days	6000 psi (41.4 MPa)

Slant Shear Bond, ASTM C882 per C928

24 hours	1200 psi (8.27 MPa)
28 days	2200 psi (15.2 MPa)

Splitting Tensile, ASTM C496

7 days	600 psi (4.1 MPa)
28 days	700 psi (4.8 MPa)

Flexural Strength, ASTM C78

7 days	500 psi (3.5 MPa)
28 days	550 psi (3.8 MPa)

Length Change, ASTM C157 per C928 (max)

28 days in air	-0.04
28 days in water	0.02

Scaling Resistance, ASTM C672 per C928 (max)

Visual rating	2
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Freeze Thaw, ASTM C666 Procedure A

Durability factor (Dynamic modulus)	98
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*After final set
Data obtained at 4" slump by ASTM C143 at 70°F (21°C)



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