

DOT CONCRETE MIX

High-Performance, Fast-Setting, Multi-Purpose Concrete Repair Material



PRODUCT DATASHEET

DESCRIPTION: Rapid Set® DOT CONCRETE MIX is a high-performance, polymer-modified, fast-setting, fiber reinforced concrete repair material. Durable in wet environments, DOT CONCRETE MIX is a blend of Rapid Set hydraulic cement, high performance additives, fibers and quality ASTM C33, 3/8" aggregates. DOT CONCRETE MIX has been specially formulated to match the color of typical portland cement concrete. DOT CONCRETE MIX is non-metallic and no chlorides are added. Combine DOT CONCRETE MIX with water to produce a workable, quality concrete repair material that is ideal where fast strength gain, high durability and low shrinkage are desired. Integral Rapid Set® Corrosion Inhibitor and air entrainment additives are already added to increase protection of embedded reinforcement and freeze thaw durability. DOT CONCRETE MIX achieves structural strength within 2 hours.

USES: Use DOT CONCRETE MIX for general and structural concrete repair, highway repair, footings, airport pavements, construction of pavements, bridges, parking decks, ramps, sidewalks, steps, joint repair and formed work.

ENVIRONMENTAL ADVANTAGES: Use DOT 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 DOT CONCRETE MIX in thicknesses from 2" to 24" (5 cm to 61 cm). For thinner applications, Rapid Set® DOT Repair Mix, Rapid Set® DOT Repair Mortar, Rapid Set® Mortar Mix, Rapid Set® Mortar Mix Plus or Rapid Set® V/O Repair Mix.

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. Mechanically abrade surface and remove all unsound material. Apply DOT 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 required. Organize work so that all personnel and equipment are in place before mixing. Use clean potable water. **DOT CONCRETE MIX may be mixed using 3.0 to 3.5 quarts (2.8 L to 3.3 L) of water per 60-lb (27.2-kg) bag. Use less water to achieve higher strengths. Do not exceed 3.5 quarts (3.3 L) of water per bag.** Place the desired quantity of mix water into the mixing container. While the mixer is running, add approximately two-thirds of the DOT CONCRETE MIX and continue mixing for 30 to 60 seconds. While mixing, add the remaining DOT CONCRETE MIX. Mix for an additional 1 to 2 minutes or until a lump-free, uniform consistency is achieved. Do not retemper.

PLACEMENT: DOT 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. On flat work, do not install in layers; install full depth sections and progress horizontally. Do not wait for bleed water; apply final finish as soon as possible. DOT CONCRETE MIX may be troweled, floated or broom finished. The working time for DOT CONCRETE MIX is 15 to 20 minutes at 70°F (21°C). To extend working time, use Rapid Set® SET Control retarding admixture or use cold mix water. Do not install on frozen surfaces. DOT CONCRETE MIX may be applied in temperatures ranging from 45°F to 90°F (7°C to 32°C).

OVERVIEW

Highlights:

Fast: Ready for traffic and loading in 2 hours

Durable: Formulated for long life in critical applications

Integral Corrosion Inhibitor: Corrosion resistance for embedded reinforcement

Polymer modified

Fiber reinforced

Air Entrained: Freeze thaw durability

Concrete gray color

Structural: For repair and new construction

Multi-Purpose: Use for concrete repair, airport pavements, highway repair, construction of pavements and bridges, parking decks and ramps, sidewalks and steps, joint repair, formed work and more

Conforms to:

ASTM C928 R3

Approved:

State (DOT) and local approvals

MasterFormat® 2016

03 01 30 Maintenance of Cast-in-Place Concrete

03 01 40 Maintenance Of Precast 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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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 shorten 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.

CURING: Water cure all DOT CONCRETE MIX installations by keeping exposed surfaces wet for a minimum of 1 hour. Begin curing as soon as the surface starts to lose its moisture. The objective of water curing is to maintain a continuously wet 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. A curing compound conforming to ASTM C309 Type 2, Class B may be used. For best results, protect from direct sunlight, wind, and other conditions that may cause rapid drying of material.

YIELD & PACKAGING: DOT CONCRETE MIX is available in 60-lb (27.2 kg) bags. One 60-lb (27.2 kg) bag of DOT CONCRETE MIX will yield approximately 0.48 ft³ (0.014 m³).

SHELF LIFE: DOT 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

Compressive Strength, ASTM C39

2 hours	3000 psi (20.7 MPa)
24 hours	5000 psi (34.5 MPa)
7 days	6000 psi (41.4 MPa)
28 days	6500 psi (44.8 MPa)

Splitting Tensile Strength, ASTM C496

28 days	300 psi (2.1 MPa)
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Slant Shear Bond Strength, ASTM C882 per C928

24 hours	1700 psi (11.7 MPa)
7 days	2300 psi (15.9 MPa)
28 days	3000 psi (20.7 MPa)

Modulus of Elasticity, ASTM C469

28 days	3.6 x 10 ⁶ psi
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Scaling Resistance, ASTM C672 per C928

50 cycles	Visual rating - 1
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Freeze Thaw, ASTM C666 Procedure A

300 Cycles: Durability factor	≥ 96%
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Length Change, ASTM C157 per C928 (Air Storage)

7 days	0.015%
28 days	0.035%

Length Change, ASTM C157 per C928 (Water Storage)

7 days	0.001%
28 days	0.008%

Rapid Chloride Ion Penetration, ASTM C1202

28 days	< 1000 Coulombs
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Data obtained at 4" slump by ASTM C143 at 70°F (21°C)



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