



# DOT REPAIR MIX

High Performance Concrete Repair Material



## Highlights:

- **FAST**  
*Ready for traffic and loading in 1 hour*
- **DURABLE**  
*Formulated for long life in critical applications*
- **STRUCTURAL**  
*For repair and new construction*
- **MULTI-PURPOSE**  
*Use for concrete repair, highway repair, dowel bar retrofit, construction of pavements & bridges, parking decks, ramps, sidewalks, steps, joint repair, formed work and more*

## CONFORMS TO:

ASTM C928  
California Test No. 551

## MANUFACTURER:

CTS Cement Manufacturing Corp.  
11065 Knott Ave., Suite A  
Cypress, CA 90630  
Tel: 800-929-3030  
Fax: 714-379-8270  
Web: [www.CTScement.com](http://www.CTScement.com)  
E-mail: [info@CTScement.com](mailto:info@CTScement.com)

## PRODUCT NAME:

Rapid Set® DOT REPAIR MIX

**DESCRIPTION:** Rapid Set DOT REPAIR MIX is a high performance, fast setting, multi-purpose repair material. Durable in wet environments, DOT REPAIR MIX is a blend of Rapid Set hydraulic cement, high performance additives and ASTM C33 concrete sand. DOT REPAIR MIX is non-metallic and no chlorides are added. Mix DOT REPAIR MIX with water to produce a flowable, quality repair material that is ideal where fast strength gain, high durability and low shrinkage are desired. DOT REPAIR MIX is ready for traffic and loading within 1 hour.

**USES:** Use DOT REPAIR MIX for concrete repair, highway repair, dowel bar retrofit, construction of pavements and bridges, parking decks and ramps, sidewalks and steps, joint repair and formed work. DOT REPAIR MIX contains an air-entraining admixture, in some geographical areas, for freeze thaw durability.

**ENVIRONMENTAL ADVANTAGES:** Use DOT REPAIR MIX to reduce your carbon footprint and lower your environmental impact. Production of Rapid Set cement emits far less CO<sub>2</sub> than portland cement. Contact your Rapid Set representative for LEED values and further environmental information.

**APPLICATIONS:** Apply DOT REPAIR MIX in thicknesses from 1/2" to 4" (1.2 cm to 10.2 cm). For thicker applications, DOT REPAIR MIX can be extended with up to 100% clean, dry coarse aggregate (up to 3/4") conforming to ASTM C33.

**SURFACE PREPARATION:** For repairs, application surface shall 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 REPAIR 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. **DOT REPAIR MIX may be mixed using 3 to 4.5 quarts (2.8 L to 4.3 L) of water per 55-lb (25 kg) bag. Use up to 5 quarts (4.7 L) when extended with dry coarse aggregate. Use less water to achieve higher strengths.** Place the desired quantity of mix water into the mixing container. While the mixer is running add DOT REPAIR MIX. Mix for the minimum amount of time required to achieve a lump-free, uniform consistency (usually 1 to 3 minutes). Do not retemper.

**PLACEMENT:** DOT REPAIR 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 REPAIR MIX may be troweled, floated or broom finished. The working time for DOT REPAIR MIX is 10 to 25 minutes at 70°F (21°C). To extend working time use Rapid Set® SET Control® set retarding admixture



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from the Rapid Set® Concrete Pharmacy® or cold mix water. Do not install on frozen surfaces. Rapid Set® DOT REPAIR MIX may be applied in temperatures ranging from 45°F to 90°F (7°C to 32°C).

**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 Rapid Set® SET Control® set retarding admixture from the Concrete Pharmacy will help offset the effects of high temperatures.

**CURING:** Water cure all Rapid Set® DOT REPAIR MIX installations by keeping exposed surfaces wet for a minimum of 1 hour. Begin curing as soon as the surface starts to lose its moist sheen. When experiencing extended setting time due to cold temperature or the use of retarder, longer curing times may be required. The objective of water curing shall be to maintain a continuously wet surface until the product has achieved sufficient strength.

**YIELD & PACKAGING:** DOT REPAIR MIX is available in 55 lb (25 kg) bags. One 55 lb (25 kg) bag of DOT REPAIR MIX will yield approximately 0.5 ft³. When extended 60% by weight with quality coarse aggregate, yield is approximately 0.7 ft³. When extended 100% by weight with quality coarse aggregate, yield is approximately 0.9 ft³.

**SHELF LIFE:** When stored in a dry location, out of direct sunlight, in an undamaged package, DOT REPAIR MIX has a shelf life of 12 months.

**USER RESPONSIBILITY:** Before using CTS products, read current technical data sheets, bulletins, product labels and safety data sheets at [www.CTScement.com](http://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 concrete, 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 concrete splashes into eyes, rinse eyes with clean water for at least 15 minutes and go to the hospital for further treatment.

**PROPOSITION 65 WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Please refer to the SDS and [www.CTScement.com](http://www.CTScement.com) for additional safety information regarding this material.

PHYSICAL DATA					
Neat Bag (3.0 to 4.5 quarts)		60% Extension (3.5 to 4.75 quarts)		100% Extension (3.5 to 5.0 quarts)	
<b>Yield</b>					
0.5 ft³		0.7 ft³		0.9 ft³	
<b>Compressive Strength, ASTM C109 Mod., ASTM C39</b>					
1 hr*	3300 psi	1 hr*	2800 psi	1 hr*	2500 psi
3 hrs	5000 psi	3 hrs	4600 psi	3 hrs	4200 psi
24 hrs	7000 psi	24 hrs	6800 psi	24 hrs	6500 psi
7 days	7500 psi	7 days	7200 psi	7 days	7000 psi
28 days	9500 psi	28 days	9000 psi	28 days	8500 psi
<b>Flexural Strength, ASTM C78</b>					
4 hrs	450 psi	4 hrs	400 psi	4 hrs	400 psi
7 days	700 psi	7 days	650 psi	7 days	600 psi
28 days	900 psi	28 days	850 psi	28 days	800 psi
<b>Modulus of Elasticity, ASTM C469</b>					
7 days	4,400,000 psi	7 days	4,100,000 psi	7 days	3,900,000 psi
28 days	5,100,000 psi	28 days	4,500,000 psi	28 days	4,000,000 psi
<b>Slant Shear Bond Strength, ASTM C882</b>					
1 day	1500 psi	1 day	1200 psi	1 day	1100 psi
7 days	2000 psi	7 days	1800 psi	7 days	1700 psi
<b>Splitting Tensile Strength, ASTM C496</b>					
7 days	700 psi	7 days	500 psi	7 days	390 psi
28 days	900 psi	28 days	600 psi	28 days	415 psi
<b>Resistance of Concrete to Rapid Freezing and Thawing, ASTM C666 Procedure A (Air Cured)</b>					
Durability Factor 300 Cycles: 95%		Durability Factor 300 Cycles: 95%		Durability Factor 300 Cycles: 95%	
<b>Scaling Resistance, ASTM C672</b>					
Scaling of material at 25 cycles: 0.05 lb/ft²		Visual rating at 25 cycles - 2		Visual rating at 25 cycles - 1	
<b>Length Change, ASTM C157 modified per ASTM C928</b>					
Air Cure: -0.08% Water Cure: 0.02%		Air Cure: -0.07% Water Cure: 0.01%		Air Cure: -0.05% Water Cure: 0.05%	
*Data obtained at flow consistency of 105 by ASTM C1437 at laboratory conditions		*Data obtained at slump consistency at 6" by ASTM C143 at laboratory conditions		*Data obtained at slump consistency at 6" by ASTM C143 at laboratory conditions	

Results will vary depending on aggregates and jobsite conditions

**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's 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.

