



Pre-extended,  
RAPID  
REPAIR CONCRETE



Updated 12.7.09

## 1 General Characteristics

**D.O.T.Line™** is an extremely versatile, cementitious, rapid setting, semi-leveling structural repair concrete. It is a single component powder that is water activated. **D.O.T.Line™** has 25 minutes of working time and will reach compressive strengths of more than 2,500 psi within 2 hours from the addition of water. **D.O.T.Line™** can be applied in ambient temperature ranges from 30 to 120 degrees Fahrenheit.

**D.O.T.Line™** finishes like traditional Portland based concrete and cleans up easily with water. **D.O.T.Line™** rapid repair concrete offers high performance and ease of use in a cost effective, turn-key, pre-extended package.

**RECOMMENDED USES:** **D.O.T.Line™** has been designed for horizontal applications providing for cost effective structural repair of roads and bridges.

## 2 Additional Physical Properties

**UNIT WEIGHT** (with water, sand & aggregate)

152 lb/ft<sup>3</sup> (2434 kg/m<sup>3</sup>)

### SETTING TIME

Set Times at 72°F/22°C at 2" (5 cm) material depth

Initial set: 20 - 25 minutes

Final set: 30 - 40 minutes

**VOLUME YIELD** (#8 - 3/8" fractured stone- included)

0.40ft<sup>3</sup> (.011m<sup>3</sup>)

## 3 Specifications

Results provided by licensed engineering test laboratory and represent typical results from production materials. Actual results may vary from third party testing results; however, CERATECH's materials meet and/or exceed established internal quality control standards, (available upon request) . All samples were air cured.

| Property   | As Packaged<br>4 in. x 8 in. cylinders | Test Method         |
|--|--|---------------------|
| <b>Compressive Strengths, psi (MPa)</b>  |  |                     |
| <b>2 hours</b>   | <b>2820</b> (19.4)                     | <b>ASTM C 39</b>    |
| <b>1 day - 24 hours</b>  | <b>6115</b> (42.2)                     | <b>ASTM C 39</b>    |
| <b>7 days</b>  | <b>9345</b> (64.4)                     | <b>ASTM C 39</b>    |
| <b>28 days</b>   | <b>10,510</b> (72.5)                   | <b>ASTM C 39</b>    |
| <b>Flexural Strength, psi (MPa)</b>  |  |                     |
| <b>1 day - 24 hours</b>  | <b>690</b> (4.8)                       | <b>ASTM C 78</b>    |
| <b>7 days</b>  | <b>945</b> (6.5)                       | <b>ASTM C 78</b>    |
| <b>28 days</b>   | <b>1405</b> (9.7)                      | <b>ASTM C 78</b>    |
| <b>Splitting Tensile Strength, psi (MPa)</b>   |  |                     |
| <b>28 days</b>   | <b>590</b> (4.0)                       | <b>ASTM C 496</b>   |
| <b>Bond Strength, psi (MPa)</b>  |  |                     |
| <b>1 day - 24 hours</b>  | <b>1960</b> (13.6)                     | <b>ASTM C 882</b>   |
| <b>7 days</b>  | <b>2745</b> (18.9)                     | <b>ASTM C 882</b>   |
| <b>Rapid Freeze Thaw Resistance</b> (Durability Factor - Retained percentage of Dynamic Modulus) |  |                     |
| <b>300 cycles</b>  | <b>100%</b>                            | <b>ASTM C 666A</b>  |
| <b>Scaling Resistance, lbs/ft<sup>2</sup> (kg/m<sup>2</sup>)</b>                                 |  |                     |
| <b>50 cycles</b>   | <b>0</b>                               | <b>ASTM C 672</b>   |
| <b>Modulus of Elasticity, msi (GPa)</b>  |  |                     |
| <b>28 days</b>   | <b>5.2</b> (35.1)                      | <b>ASTM C 469</b>   |
| <b>Coefficient of Thermal Expansion, in/in/°F</b>  |  |                     |
| <b>28 days</b>   | <b>1.32</b>                            | <b>AASHTO TP 60</b> |
| <b>Length Change, % of total length</b>  |  |                     |
| <b>28 days soak / 28 days dry</b>  | <b>-0.052 / -0.041</b>                 | <b>ASTM C 157</b>   |



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## 4 Site Preparation

Surfaces should be prepared in accordance with ICRI 03730, "Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion." and / or ACI 546R-96 "Concrete Repair Guide". Concrete surfaces should be prepared by appropriate mechanical methods to obtain an exposed aggregate surface with a minimum surface profile of +/- 1/16" (1.5 mm) in accordance with ICRI 03732. Pre-existing coatings or surface treatments should be completely removed. Dry, clean, stable surfaces are required. Remove all standing water. Reinforcing steel should have no loose scale. **Surfaces of host concrete must be damp.**

## 5 Mixing Instructions

### Standard Mixing Procedures (Rotating Drum Concrete Mixer)

- Pre-wet cement mixer with water then drain all water from mixer (away from repair area)
- Start mixer - **D.O.T.Line™** requires a total of 2 quarts of water per 53.5 lb. unit. Initially, add only 1 quart of water to concrete mixer per 53.5 lb unit of **D.O.T.Line™** to be used.
- Add pre-determined units of **D.O.T.Line™**, mix for 1 minute
- Add in remaining quart of water per unit of **D.O.T.Line™**
- Mix for 6 additional minutes or 7 minutes total
- Pour all contents into repair area
- Clean mixer or repeat process for next batch

**! D.O.T.Line™** is a water to binder sensitive cement. NEVER use less than 2 quarts of water nor MORE THAN 2 1/8 quarts of water per 53.5 lb. unit of **D.O.T.Line™**

### NOTES:

1. In ambient temperatures, < 50°F / 10°C, use warm water from 70°F/22°C to 90°F/32°C
2. In ambient temperatures > 85°F/ 29°C, use cooler water from 50°F/ 10°C to 60°F/16°C
3. Working times will vary when mix water temperature's are outside of these recommendations
4. Minimum recommended batch size is 2 units ( Use 4 quarts of water for 2 bag batches)

## 6 Packaging & Shelf Life

### PACKAGING

53.5lb (24.3 kg) Bag

### SHELF LIFE

1 year

### STORAGE

Bags must be kept dry

## 7 Limitations

- Not recommended for surface temperatures above 120°F/49°C or below 30°F/-1°C.
- Will not bond to polymers.
- Pumping not recommended.

## 8 Application & Finish

- **Surfaces of host concrete must be damp with no standing water.**
- Working times based on ambient temperature, types of aggregate and total amount of water.
- Working times are influenced by surface temperature and repair profile.
- Minimum profile thickness is **1.25"** (3.2 cm). There are no restrictions to the depth of the repair profile.
- For best results, CERATECH recommends monolithic placement of repair materials. Maintain a minimum thickness of 1.00 inch if repair material must be layered. Material must also be layered before final set has been reached.
- Upon initial set, a broom finish can be applied. Upon final set, the material can be saw-cut, drilled, sanded and/or polished
- Do not re-temper. The addition of water to the surface of the repair will negatively affect the materials final properties.
- **General loading in 2 hours for wheeled traffic and 1 hour for foot traffic after addition of water.** In ambient and/or surface temperatures below 32°F/0°C, extend the loading time by 60 minutes for each 10° below 32°F/0°C.
- **All previously existing joints must be re-established within 2-3 hours of final set.**
- Self-curing, (Protect with blankets or equivalent in ambient temperatures below freezing (32°F / 0°F).
- Clean all tools and equipment with water prior to the material reaching final set.



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**8 Safety**

- See **Material Safety Data Sheet (MSDS)**.
- This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.
- Dispose of water and materials in accordance with Federal, State and Local regulations.
- The use of a dust mask, safety goggles and gloves is recommended.
- Keep out of the reach of children.



**To Ensure Performance**  
**Attention!**

**Read All DOTLINE™  
Mixing Instructions  
Prior To Using!**

**Step by Step - Concrete Mixer & Placement Instructions**

**! A Minimum 2 bag batch is recommended**

**Repair Area Must Be  
Clean & Mechanically  
Sound**

**! Surfaces of host concrete must be damp**



**1**  
Pre-wet mixer with water then drain as shown



**2**  
DO NOT drain into repair site!



**3**  
Start mixer turning



**\* Use 4 Quarts of water for  
2 bag batches**

**DOTline™ requires 2 quarts of water total per 53.5 lb. bag unit. Initially, add only 1 quart of water for each unit of DOTline™ to be mixed**

**\*Mix water temps should be between 60°F/16°C - 70°F/21°C**

**\*In ambient temperatures less than 50°F/10°C, use warm water from 70°F/22°C to 90°F/32°C**

**\*In ambient temperatures greater than 85°F/29°C, use cool water from 50°F/10°C to 70°F/22°C**



**4**  
With mixer still turning, add pre-determined units of DOTline™. Mix for 1 minute

Add in remaining 1 quart of water per each unit of DOTline™ used.



**5**  
**Mix for 6 additional minutes (7 minutes total) and place.**  
Pour DOTline™ into repair site. **DO NOT RE-TEMPER WITH WATER**



**6**  
Clean mixer or add water for next batch

**! D.O.T.Line™ is a water to binder sensitive cement. NEVER use less than 2 quarts of water nor MORE THAN 2 1/8 quarts of water per 53.5 lb. unit of DOTLine™.)**

**! A Bond release agent should be utilized on any forms should they be used**

**V1**

**WARRANTY:**

CERATECH, Inc. ("CERATECH") warrants that its products are free from defects in materials and workmanship. If any CERATECH product fails to conform to this warranty, CERATECH will replace the product at no cost to the buyer or refund the purchase price, at CERATECH's election. Any warranty claim must be made within one (1) year from the date of the shipment of the product to the buyer. In no event shall CERATECH be liable to the buyer for any consequential or incidental damages of any nature. CERATECH MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, WRITTEN OR ORAL AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF ITS PRODUCTS AND EXCLUDES THE SAME. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

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