

TECHNICAL DATA SHEET

DESCRIPTION

DOT Rapid Repair is a rapid-setting, high-strength, polymer-modified, single component, hydraulic cement mortar designed for horizontal concrete repair. DOT Rapid Repair is available as a neat mortar or pre-extended with coarse aggregate.

USE

DOT Rapid Repair is designed for the repair of heavy duty surfaces such as concrete highways, bridge decks, parking structures, airport runways, freezer rooms, industrial and warehouse floors, and loading docks. DOT Rapid Repair is a trowel-able consistency ideal for horizontal applications.

FEATURES

- Meets or exceeds ASTM C928-R3 Standard Specification for Packaged, Dry, Very Rapid, Hardening Cementitious Materials for Concrete Repair
- Rapid strength gain- over 3,000 psi in three hours
- Contains no chlorides or magnesium phosphate
- Polymer modified
- Integral corrosion inhibitor
- Neat material applications- 1/2" (13mm) to 2" (51mm) or can be field extended for deeper repairs up to 8" (203mm).
- Extended material applications- 2" (51mm) to 24" (610mm)

PROPERTIES

Meets ASTM C928: As a Type R-3 mortar
See Appendix A for set times and test results

Note:

The data shown is typical for controlled laboratory conditions. Reasonable variation from these results can be expected due to interlaboratory precision and bias. When testing the field mixed material, other factors such as variations in mixing, water content, temperature and curing conditions should be considered.

Estimating Guide

Neat: each 50 lb. (22.7 kg) bag yields 0.4 cu. ft. (0.011 cu. m)
Extended: each 50 lb. (22.7 kg) bag yields 0.4 cu. ft. (0.011 cu. m)
Field Extended: each 50 lb. bag (extended with 30 lb. pea gravel) yields 0.6 cu. ft. (0.017 cu. m)

Packaging

PRODUCT CODE		PACKAGE	SIZE	
			lbs	kg
101222	Neat Mortar	Bag	50	22.7
101223	Pre-Extended	Bag	50	22.7

STORAGE

Shelf life of unopened bags, when stored in a dry facility, is 12 months. Excessive temperature differential and/or high humidity can shorten the shelf life expectancy. Store in a cool, dry area free of direct sunlight.

Surface Preparation:

The concrete must be sound and free of all foreign material, including oil, grease, dust, laitance, or other surface contaminants.

Surface preparation in accordance with ICRI Guidelines is recommended. The edges of the patches should be saw-cut perpendicular to the surface to a minimum depth of 1/2 in. (13 mm). Best results will be obtained by abrasive blasting the area to be repaired, providing uniform depth, a high surface profile and a firm bonding area.

All surfaces to be repaired should be in a saturated-surface-dry (SSD) condition with no standing water on the surface.

Water Requirements:

DOT Rapid Repair requires only the addition of water.
Neat: 4.5-5.5 pints (1.9-2.1 L) per 50 lb. (22.7 kg) bag
Extended: 3-3.25 pints (1.4-1.5 L) per 50 lb. (22.7 kg) bag
Field Extended: Field extend by using 5 pints (2.4 L) per full 50 lb. (22.7 kg) bag of DOT Rapid Repair mix and 30 lbs. (13.6 kg) of 3/8" (10mm) dry pea gravel aggregate

Mixing

Precondition the DOT Rapid Repair to 50°F-75°F (10°C-24°C). Mix material as close to the repair area as possible. Mix with a low speed drill or, for larger projects a mortar mixer with rubber tipped blades. Add the water first and then the powder. Mixing time should be 3 to 4 minutes to a lump-free consistency.

Do not re-temper or overwater. Place immediately after mixing, and placement should not exceed ten minutes. Adequate placing and finishing equipment and material should be available for continuous placement of the material to prevent cold joints.

TECHNICAL DATA SHEET**Field Extended Mixing:**

For repairs deeper than 2 in. (51 mm), DOT Rapid Repair (Neat) can be extended 60% by weight using clean 3/8 in. (10 mm) dry pea gravel meeting ASTM C33 (up to 30 lb. dry pea gravel per 50 lb. bag). Mix the DOT Rapid Repair as outlined and then during the last minute of mixing (after 2 minutes) add the pea gravel, blend for 1 additional minute and place. Max lift when field extended is 8 in. (203 mm).

Placement:

Using freshly mixed material, scrub a thin layer onto the SSD substrate with a stiff fiber brush and place the repair mortar before the scrub coat dries. Trowel the repair material onto the surface to a minimum thickness of 1/2 in. (13 mm).

Ideal application conditions are when air, material and substrate temperature are between 50°F-90°F (10°C-32°C).

Hot and Cold Weather Applications:

Ideal mixed product temperature at placement is 65°-70°F (21°C), where the initial setting time is 15-20 minutes. Hot temperatures will shorten setting time, while cold temperatures will extend setting time. Surfaces should be conditioned to between 35°F-90°F (2°C-32°C) at time of placement.

Hot Weather 80°F-100°F (27°C-38°C):

Keep DOT Rapid Repair cool. Pre-soak and then remove standing water from the repair area, resulting in a saturated surface dry (SSD) surface. Mix DOT Rapid Repair using chilled water to extend working time. The repair must be protected from rapid dry out with wet burlap or a water based curing compound.

Cold Weather 35°F-40°F (2°C-4°C):

Do not use set accelerators and keep DOT Rapid Patch warm. Heat the surrounding concrete until warm. Combine the warmed repair material with warm mixing water. After placing use a construction insulating blanket for at least 2-3 hours and protect the material from freezing.

CURING

Water cure for a minimum of 1 hour or apply a Dayton Superior ASTM C309 water-based curing compound to the repaired area after final set. Prolonged wet curing minimizes the chances of cracking and improves physical properties.

CLEAN UP

Clean tools and equipment immediately with water. Hardened material will require mechanical removal.

LIMITATIONS**FOR PROFESSIONAL USE ONLY**

DO NOT featheredge.

Do not re-temper the mixed material or use admixtures.

In extreme weather refer to:

ACI 305 Standard on Hot Weather Concreting

ACI 306 Standard on Cold Weather Concreting

Prior to coating, moisture content must be measured and comply with the coating manufacture's requirements.

When testing the field mixed material, other factors such as variations in mixing, water content, temperature and curing conditions should be considered.

When using less than one bag always dry mix the full bag prior to each use.

DO NOT apply at temperatures below 40°F (5°C) without following the cold weather concreting procedures outlined in ACI 306.

Colder temperatures will extend the setting time and warmer temperatures will reduce the setting time.

Do not use for resurfacing or topping large floor areas.

Mixing equipment should be cleaned with water frequently and prior to material hardening.

PRECAUTIONS**READ SDS PRIOR TO USING PRODUCT**

- Product contains Crystalline Silica and Portland Cement – Avoid breathing dust – Silica may cause serious lung problems
- Use with adequate ventilation
- Wear protective clothing, gloves and eye protection (goggles, safety glasses and/or face shield)
- Keep out of the reach of children
- Do not take internally
- In case of ingestion, seek medical help immediately
- May cause skin irritation upon contact, especially prolonged or repeated. If skin contact occurs, wash immediately with soap and water and seek medical help as needed.
- If eye contact occurs, flush immediately with clean water and seek medical help as needed
- Dispose of waste material in accordance with federal, state and local requirements

TECHNICAL DATA SHEET**MANUFACTURER**

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Technical Services: 877-266-7732
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WARRANTY

Dayton Superior Corporation ("Dayton") warrants for 12 months from the date of manufacture or for the duration of the published product shelf life, whichever is less, that at the time of shipment by Dayton, the product is free of manufacturing defects and conforms to Dayton's product properties in force on the date of acceptance by Dayton of the order. Dayton shall only be liable under this warranty if the product has been applied, used, and stored in accordance with Dayton's instructions, especially surface preparation and installation, in force on the date of acceptance by Dayton of the order. The purchaser must examine the product when received and promptly notify Dayton in writing of any non-conformity before the product is used and no later than 30 days after such non-conformity is first discovered. If Dayton, in its sole discretion, determines that the product breached the above warranty, it will, in its sole discretion, replace the non-conforming product, refund the purchase price or issue a credit in the amount of the purchase price. This is the sole and exclusive remedy for breach of this warranty. Only a Dayton officer is authorized to modify this warranty. The information in this data sheet supersedes all other sales information received by the customer during the sales process. THE FOREGOING WARRANTY SHALL BE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER WARRANTIES OTHERWISE ARISING BY OPERATION OF LAW, COURSE OF DEALING, CUSTOM, TRADE OR OTHERWISE.

Dayton shall not be liable in contract or in tort (including, without limitation, negligence, strict liability or otherwise) for loss of sales, revenues or profits; cost of capital or funds; business interruption or cost of downtime, loss of use, damage to or loss of use of other property (real or personal); failure to realize expected savings; frustration of economic or business expectations; claims by third parties (other than for bodily injury), or economic losses of any kind; or for any special, incidental, indirect, consequential, punitive or exemplary damages arising in any way out of the performance of, or failure to perform, its obligations under any contract for sale of product, even if Dayton could foresee or has been advised of the possibility of such damages. The Parties expressly agree that these limitations on damages are allocations of risk constituting, in part, the consideration for this contract, and also that such limitations shall survive the determination of any court of competent jurisdiction that any remedy provided in these terms or available at law fails of its essential purpose.

TECHNICAL DATA SHEET

Appendix A

Table 1: Set Times and Test Results for DOT Rapid Repair

Property	Neat	Extended
ASTM C403 Set times	Initial Set: 20 minutes Final Set: 25 minutes	Initial Set: 22 minutes Final Set: 28 minutes
ASTM C109 Compressive Strength 3 hours	>3,500 psi (24.1 MPa)	>3,100 psi (21.3 MPa)
ASTM C109 Compressive Strength 1 day	>5,000 psi (34.4 MPa)	>4,000 psi (27.5 MPa)
ASTM C109 Compressive Strength 7 days	>6,000 psi (41.3 MPa)	>4,400 psi (30.3 MPa)
ASTM C109 Compressive Strength 28 days	>6,500 psi (44.8 MPa)	>5,400 psi (37.2 MPa)
ASTM C109 Flow at 5 minutes	120%	110%
ASTM 1202 Rapid Chloride Permeability (28 Day)	780 Coloumbs	----
ASTM C882 Slant Shear 1 day	>1,700 psi (11.7 MPa)	>1,500 psi (10.3 MPa)
ASTM C882 Slant Shear 7 days	>2,400 psi (16.5 MPa)	>2,100 psi (14.4 MPa)
ASTM C78 Flexural Strength- (Neat) 1 day	>1,000 psi (6.9 MPa)	----
ASTM C78 Flexural Strength- (Neat) 7 days	>1,100 psi (7.6 MPa)	----
ASTM C78 Flexural Strength- (Neat) 28 days	>1,100 psi (7.6 MPa)	----
ASTM C928 Length Change Water Storage (28 days)	+0.032%	+0.005%
ASTM C928 Length Change Air Storage (28 days)	-0.043%	-0.030%
ASTM C672 Scaling (25 cycles)	0 rating	----
ASTM C666 Rapid Freezing and Thawing Average of 3 specimens (300 cycles)	99	92