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Technical Datasheet

Pavemend TR™
Extendable, Semi-Leveling, RAPID REPAIR, TROWELABLE MORTAR

CSI Div. 03

03 31 23 High Performance Structural Concrete

LEED Points

MR Credit 5.1, Regional Materials.....Up to 2 Points
 IEQ Credit 4.2, Low-Emitting Materials Paints and Coatings...1 Point
 Using this AQUAFIN product can help contribute to LEED certification of projects in the categories shown above.

Product Description:

TR is a single component, water activated, rapid setting slope grade (up to 60%) structural repair mortar with a gel like consistency suitable for troweling on horizontal and/or sloped grades and for aggregate extension. TR has 15 to 20 minutes of working time and reaches >2500 psi compressive strengths within 3 hours of final set. TR can be applied in ambient temperature ranges from 40° to 120° Fahrenheit and can be re-tempered repeatedly to a gel state prior to final set without additional water, providing ease of use and reduced material waste.

Typical Applications:

Designed specifically for use in horizontal and/or sloped applications, TR is an ideal repair material for roads and bridges, airport runways, warehouse or manufacturing facility floors, loading dock ramps, parking garages, post-tension cable repairs, form and pour projects, overlayment of concrete surfaces, joint repair, pavements etc. Can be used as a temporary repair for asphalt.

Surface Preparation:

- Concrete surfaces must be structurally sound, free of any loose or deteriorated concrete, dirt, dust, grease, oil, sealers, curing compounds and all other bond-inhibiting materials.
- Mechanically prepare surfaces to achieve a surface profile equal to CSP 5-7 as per ICRI Guideline No. 310.2R-13
- Properly clean profiled area by water-blasting. All surfaces must be saturated surface dry (SSD) but with no standing water, immediately prior to application.
- Repair areas must have saw cut straight edges with a minimum 3/8" (10 mm) depth as per ICRI Guideline 310.1R - 2008.

Mixing:

Critical Mix Temperature (CMT): TR undergoes an exothermic chemical reaction during blending. Heat, the by-product of the reaction, is the indication that the reaction is complete and that the product is ready to be poured. TR has a CMT of 90° F/32° C which MUST BE REACHED before placing to ensure performance. Mixing time to reach the CMT will vary with ambient air and mix water temperatures. Contact Aquafin Technical Department with questions regarding CMT and cold or hot weather placements. The use of an infrared thermometer is required for the mixing process to ensure that the CMT has been achieved.



Physical and Technical Data		
	NEAT 2" Cubes	Extended w/ 3/8" Pea Gravel (4" x 8" Cylinders)
Compressive Strengths, psi (MPa) ASTM C 109 / ASTM C 39	> 2,800 @ 3 hours > 5,000 @ 24 hours > 6,000 @ 7 days > 7,000 @ 28 days	> 3,000 @ 3 hours > 3,000 @ 24 hours > 3,000 @ 7 days > 3,000 @ 28 days
Flexural Strength, psi (MPa) ASTM C 78	> 600 @ 7 days > 1,400 @ 28 days	
Splitting Tensile Strength, psi (MPa) ASTM C 496	> 200 @ 7 days > 400 @ 28 days	
Bond Strength, psi (MPa) ASTM C 882	> 1,200 @ 24 hours > 1,900 @ 7 days	
Rapid Freeze Thaw Resistance ASTM C 672	100% @ 300 cycles (Durability Factor - Retained percentage of Dynamic Modulus)	
Scaling Resistance, lbs/ft² (kg/m²) ASTM C 672	0 @ 50 cycles	
Modulus of Elasticity, psi ASTM C 469	2.77 @ 28 days	
Coefficient of Thermal Expansion,	2.52 @ 28 days in/in/°F AASHTO-T336-11	
Length Change, % of total length ASTM C 157	TBD/ -0.020 @ 28 days soak/dry	
Results provided by licensed engineering test laboratory and represent typical results from production materials. Actual results may vary from third party testing results; however, Pavemend materials meet and/or exceed ASTM C928, and exceed established internal quality control standards. All samples were air cured.		

Additional Physical Properties

Set Times at 72° F/22° C Initial set: 10 - 15 minutes Final set: 20 - 25 minutes		Unit Weight (neat): approximately 115 lb/ft³ (1,842 kg/m³)	
Yield per Unit	Neat	Extended 50% with 3/8" or 1/2" fractured aggregate	Extended 75% with 3/8" or 1/2" fractured aggregate
47 lb. (21.3 kg)	0.42 ft³ (0.012 m³)	0.60 ft³ (0.017 m³)	0.71 ft³ (0.022 m³)
12 lb (5.4 kg)	0.12 ft³ (0.003 m³)	0.14 ft³ (0.004 m³)	0.18 ft³ (0.005 m³)

Standard NEAT Procedures (Bucket Mixing with Drill & Paddle)

- To ensure product performance, do not divide/separate individual units into smaller portions. Mix entire contents at one time.
- Do not hand mix. A drill (6 amp minimum) with a mixer blade turning at least 500 to 800 rpm is required. Drills with speeds greater than 800 rpms may entrain air in the mix.
- Ideal water temperature is between 65°F/18°C and 75°F/24°C. If ambient temperatures are above 85°F/29°C, use cold water at approximately 55°F/13°C.

1. To begin: Tumble bucket on ground to loosen materials, then dry mix powders in the bucket for approx. 30 seconds with drill and paddle.
2. Pour all required water into bucket, on top of TR powder. It is very important to rapidly incorporate all of the dry TR powders into water to achieve a uniform wet mixture within the first 30 seconds of mixing.:

For Each:	Add:
47 lb (21.3 kg) unit	1 U.S. gallon (3.8 L) water
12 lb (5.4 kg) unit	1 U.S. quarts (.95 L) water

3. Mix material until CMT of 90°F/32°C is reached. Place material into repair area and spread with a trowel, straight edge or squeegee, filling voids and edges.

For Aggregate Extension: (Bucket Mixing with Drill & Paddle)

- Use only 3/8" (1 cm) or 1/2" (1.3cm) #7 clean washed fractured stone up to 50% maximum by weight.
- Add aggregate to mixed material after mixing for 30 seconds.
- See mixing instruction for NEAT application above.

Application:

- Minimum product thickness (neat) is 1/4" (6 mm), and (extended) is 1" (25 mm). There are no restrictions to the depth of product thickness.
- For best results, Aquafin recommends monolithic placement of repair materials. Maintain a minimum thickness of 1.0" if repair material must be layered.
- Place onto properly prepared concrete substrate and spread with a trowel, come-a-long, or screed to a thickness that matches surrounding concrete.
- Upon initial set, finish material to desired finish texture.
- Upon final set, the material can be saw-cut, drilled, sanded and/or polished. DO NOT use additional water during the finishing process.
- All previously existing joints must be re-established within 1-3 hours of final set.
- General loading in 2 to 3.5 hour for wheeled traffic and 60 minutes for foot traffic. For applications 0.5" thick and greater, in ambient and/or surface temperatures below 50°F/10°C, extend the loading time by 30 minutes for each 10° below 50°F/10°C. For applications 1" thick and greater, in ambient and/or surface temperatures below 40°F/4°C extend the loading time by 30 minutes for each 10° below 40°F/4°C.
- Self-curing.
- Clean all tools and equipment with water prior to the material reaching final set. Cured material must be mechanically removed.

Limitations:

- Not recommended for surface temperatures above 110°F/43°C or below 40°F/4°C.
- Will not bond to polymers.
- Cannot be pumped or mixed in grout mixer or rotating drum concrete mixers due to rapid set times.

Packaging & Shelf Life:

- **PACKAGING**
 - 47 lb (21.3 kg) pail GSA P/N: C700
 - 12 lb (5.4 kg) pail GSA P/N: C750
- **SHELF LIFE:**
 - 2 years (when stored in original unopened pail).
- **STORAGE:**
 - Store pails indoors in a cool and dry location.

Note:

Installer is responsible for proper product application. Site visits by Aquafin personnel or representatives are solely for the purpose of making technical recommendations, not for providing supervision or quality control.

Safety:

Refer to **Safety Data Sheet (SDS)**. The use of a dust mask, safety goggles and gloves is recommended. 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. Keep out of the reach of children.

LIMITED WARRANTY: AQUAFIN, INC. warrants this product for a period of one year from the date of installation to be manufactured free of defects and to be consistent with its technical properties as stated in our current Technical Data Sheet. This product must be used as directed and within its stated shelf life. AQUAFIN INC. will replace or at our discretion refund the purchase price of any product, excluding cost of labor, which is proven to be defective. Our product recommendations are based on industry standards and testing procedures. It is the buyer's obligation to test the suitability of the product for an intended use prior to using it. We assume no warranties written, expressed or implied as to any specific methods of application or use of the product. AQUAFIN INC. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED. AQUAFIN, INC. shall not be liable for damages of any sort including remote or consequential damages, down time, or delay. Any claim for a defective product must be filed within 30 days of discovery of a problem, and must be submitted with written proof of purchase.

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