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RAPID REPAIR BLUE-LINE GROUT

DESCRIPTION:

Con-Spec's Rapid Repair Blue-Line Grout is a unique non-shrink, pre-blended cementitious patching material and/or grout, requiring only potable water for mixing. Blue-Line Grout achieves initial set in 20 minutes at 24°C (75°F) and can be opened to traffic within three hours. Blue-Line Grout is non-metallic, non-staining, non-toxic and is as safe to handle and work with as ordinary Portland cement. Blue-Line Grout develops high strength, and a tenacious bond. It has excellent resistance to freeze thaw cycles & weathering, and exhibits excellent sulphate resistance. Blue-Line Grout contains a migrating corrosion inhibitor that protects reinforcing steel from corrosion induced by carbonation, chloride and atmospheric attack.

USES:

Rapid Repair Blue-Line Grout is well suited for the structural repair of pavement, parking structures, bridges, masonry, loading docks, warehouses, factory and freezer floors, sewers, tunnels and all interior and exterior above or below grade applications.

CHARACTERISTICS:

Rapid Repair Blue-Line Grout is a very fast setting and versatile patching material that can be modified to alter its characteristics. Addition of fibres will improve the patch flexibility, and early curing performance. The addition of latex modifications will increase bond strength, flexibility and reduce permeability. A retarder or accelerator is available to control setting characteristics in hot or cold conditions. Rapid Repair Blue-Line Grout can be used in a flowable consistency. Contact Con-Spec for information regarding specific applications.

Rapid Repair Blue-Line Grout is suitable for freezer applications and can be used in temperatures as low as -5°C (23°F). Thickness of application is unlimited with the use of pea gravel. See limitations for deep patching.

LIMITATIONS:

Applications over 7 cm (3") in thickness require the addition of 1 cm (3/8") stone to a maximum of 22.7 kg (50 lbs) by weight per 25 kg (55 lb) bag. Temperatures below 0°C (32°F) will require the use of accelerator and/or the use of heated water.

COMPOSITION:

Rapid Repair Blue-Line Grout contains a proprietary cement formulation with specially selected aggregates and admixtures. No chlorides are used in Rapid Repair products.

COVERAGE:

Rapid Repair Blue-Line Grout is packaged in 25 kg (55 lb) bags and will yield approximately 0.5 cubic feet or 0.014 cubic meters per bag at 5.0L of water per bag. The area of coverage per bag is roughly 24 ft² at ¼" thick. A 25 kg of Rapid Repair Blue-Line Grout with 22.7 kg pea gravel will yield approximately 0.75 cubic feet or 0.021 cubic meters.

APPROVALS AND TESTS:

ASTM C157 Shrinkage ~ 0.049
ASTM C928 Very Rapid Hardening Materials for Concrete Repair
ASTM C672 Salt Scaling
50 cycles: weight loss 0.086 kg/m²
Sulphate Resistance: Better than type 50 Portland Cement
Contains less than 2% C_3A.

PROPERTIES: (@23°C)	4.5 L / 25 Kg Bag (Flowable)
Compressive Strength (ASTM C109)	
4 hours MPa (psi)	46 (6,700)
24 hours MPa (psi)	56 (8,100)
24 hours @3°C MPa (psi)	52 (7,600)
3 days MPa (psi)	60 (8,700)
7 days MPa (psi)	62 (8,950)
28 days MPa (psi)	63 (9,100)
Extended with Aggregate (CSA A23.2-9C)	
1 day MPa (psi)	35 (5,100)
7 days MPa (psi)	43 (6,200)
28 days MPa (psi)	45 (6,600)
Pull Off Testing (ASTM C1583-04)	
3 day MPa (psi)	1.6 (240)
Bond Strength (ASTM C882-99 Modified)	
24 hours Mpa (psi)	14 (2,000)
28 days MPa (psi)	16 (2,300)
Rapid Chloride Permeability (ASTM C1202)	
28 days Coulombs (neat)	732 (Very Low)
with Latex Bonding Admix (1:1 water)	579 (Very Low)
Freeze/Thaw Resistance - ASTM C666	
Relative Dynamic Modulus of Elasticity (300 Cycles)	107%

SURFACE PREPARATION:

Surface must be structurally sound, free of loose or deteriorated concrete, dust, dirt, and other contaminants. Clean and prime exposed steel and reinforcing. When substrate is not absorptive, abrade as necessary to ensure proper bonding. When temperature is above 3°C (37°F), prewet the prepared area with potable water to achieve a saturated surface dry condition, before application. Absorb excess water and puddles to prevent dilution of the grout.

MIXING INSTRUCTIONS:

Rapid Repair Blue-Line Grout will require 4.5 liters to a maximum of 5 liters of potable water per 25 kg (55 lb) bag, to achieve the proper mix consistency. Add the Blue-Line Grout to the water and thoroughly mix to the proper consistency, mix for 3 minutes minimum but no more than 5 minutes in total.

To fill patches 7 cm (3") deep or greater, add clean, dry 1 cm (3/8") size pea rock or chip stone to the Rapid Repair Blue-Line Grout. The mix ratio must not exceed 22.7 kg (50 lbs) of rock to each 25kg. bag of Rapid Repair Grout.

Mixing procedure: 1) Start mixer, 2) load water, 3) load rock, and 4) load the Rapid Repair Grout.

WORKING CHARACTERISTICS:

Rapid Repair Blue-Line Grout has a quick 20 minute initial set, and can be opened to traffic within three hours at 24^{O}C (75^{O}F). The mixed material trowels easily and has an easily workable consistency at all water contents. Due to the short working time of Blue-Line Grout it is important to organize the placement operation within this time limitation. After placement, the Rapid Repair Blue-Line Grout will gain strength quickly and finishing operations may become difficult.

The working time may be extended by using cold materials and/or a retarder. In cold weather, warm materials and/or an accelerator may be used to hasten the set and strength development.

APPLICATION TECHNIQUES:

To ensure complete bond with the entire surface, a prime coat of Rapid Repair Blue-Line Grout mixed with water or our Latex Bonding Admixture as a slurry coat may be scrubbed in the concrete surface. The Rapid Repair Blue-Line Grout is then mixed into a no slump consistency and firmly placed into the prepared area by hand or with a trowel. Apply sufficient force to fill all holes and voids, and then trowel to a smooth finish. On large areas, use a screed to obtain a uniform level before trowelling.

For cold weather installation, Rapid Repair Blue-Line Grout will achieve initial set faster than water will freeze. When temperature is 3^{O}C (37^{O}F) or below, do not prewet area to be patched. Use heat to eliminate frost in the substrate, but do not heat surface above 21^{O}C (70^{O}F). Use warm water for mixing, as cold water extends the set time. Do not apply heat after the patching material has been installed. Do not wet cure. For additional cold weather information, contact your sales representative.

For thin patching under 1cm (3/8") modification with our Latex Bonding Admixture according to manufacturer's specifications is highly recommended.

CURING TECHNIQUES:

Rapid Repair Blue-Line Grout MUST be cured using water for first hour. Wet curing of all patches and exposed grout areas with saturated burlap or fine water mist is highly recommended. When Rapid Repair Blue-Line Grout is applied in areas exposed to wind and/or direct sunlight the saturated burlap should be covered with a polyethylene sheet. The saturated burlap can be applied as soon as the product has set firm and surface cannot be marred. **Do not wet cure below 3^{O}C (37^{O}F).**

SET CONTROL:

Retarder: To lengthen the setting time, Rapid Repair Retarder may be used. It is available in bulk lots and small individual packets. The dry Rapid Repair Retarder powder should be mixed into the mixing water first. **One packet of Rapid Repair Retarder will extend the setting time of a bag of Blue-Line Grout for approximately 15 to 30 minutes at normal temperatures 24^{O}C (75^{O}F).**

Rapid Repair Retarder acts as a water-reducing agent and improves fluidity. Concrete strength is improved by about 5%.

Accelerator: In cold weather applications or with freezer floor repairs it may be desirable to add an accelerator to the mixing water. A packet of accelerator dry powder, when mixed with Rapid Repair Grout at 3^{O}C (37^{O}F) will cause the mix to harden in about 15 to 30 minutes.

TRIAL BATCHES ARE RECOMMENDED TO DETERMINE EXACT HARDENING TIME IN SITUATIONS OF EXTREME TEMPERATURE.

FIBERS:

Polypropylene fiber reinforcement is used to make Rapid Repair Products even stronger while reducing plastic shrinkage cracking.

Polypropylene fibers are non-corrosive and alkali resistant. They are designed to reinforce Rapid Repair products. One bag of Blue-Line Grout requires 32 grams of fiber.

The fibers should be added to the mixing water and thoroughly blended before adding the Blue-Line Grout to the mixing water. If possible, continue to stir the water-fiber mix while slowly adding the dry mix to the water-fiber mixture. This will maximize the distribution of the fibers in the mix. All other standard procedures and practices for the use of grout or concrete should be followed. Fibers may stick up in the finished top surface but will wear off with time.

GFRC FORMULATION:

For each 25 Kg bag of Rapid Repair Blue-Line Grout use:
775 grams AR Glass Fibre
1.5 Litres PolyPlex Polymer
4.25 Litres Water

CLEAN UP:

Clean application tools and mixing equipment with water immediately following use.

SAFETY PRECAUTIONS:

Product contains cement and is alkaline on contact with water. Wear dust, skin, and eye protection. Irritating to eyes and skin. Avoid splashing into eyes. Avoid contact with skin. In case of eye contact, flood eyes repeatedly with water and call a physician immediately. DO NOT RUB EYES! Wash hands thoroughly with soap and clean water after handling. Do not take internally. Keep out of reach of children. Consult Safety Data Sheet for further information.

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