AB CHEMPLUG REPAIR MORTAR&CONCRETE

AB chem grout rg 25 kg

General purpose non shrink cementitious micro concrete

Uses: For economical repairs to damaged reinforced concrete elements, particularly where access is restricted and where vibration of the placed material is difficult or impossible. Suitable for various structural strengthening measures such as filling honeycombs and cracks..

Advantages:

- Gaseous expansion system compensates for shrinkage and settlement in the plastic state.
- Can be pumped or poured into restricted locations.
- Highly fluid to allow for placement without vibration.
- Pre-packed to overcome site-batched variations.
- Low permeability
- Economical
- Contains no chloride admixture.
- Ease of use

Description: CHEMPLUG RG is supplied as a ready to use blend of dry powder, which requires only the site addition of clean water to produce free-flowing, non-shrink micro concrete. The material is based on Portland cements, and fillers, and additives which impart controlled expansion characteristics in the plastic state, while minimizing water demand. The low water requirement ensures high early strength and long-term durability.

For larger repairs, CHEMPLUG RG may be modified by the addition of 5mm to 12mm clean, graded saturated surface dry aggregates at site. For exceptionally large repairs, the local APEXBUILD office should be consulted.

Technical support: APEXBUILD offers a technical support package to specifies, end users and contractors as well as technical on-site assistance in locations all over the country.

Design criteria: CHEMPLUG RG can be applied in sections up to 100mm deep. For larger sections, the addition of approved aggregates may be required. This will depend on the specific configuration of the repair location. Consult the local APEXBUILD office for further information.

Properties: The following results were obtained at water: Powder ratio of 0.19 @ 300C.

TEST	Typical result at 300C
• Compressive strength (N/mm2):	
1 DAYS	8
7 DAYS	25
28 DAYS	35
• Flexural strength:	3 N/MM2 @28 DAYS
• Young's modulus	22 KN/mm2
• Expansion characteristics	

Unrestrained expansion	1 to 4%
• Pressure to restrain	
Plastic expansion	Approx. 0.004 N/mm2
Co- efficient of thermal expansion	10 – 12 x 10-6/ 0C
Fresh wet density	2100-2200 kg/m3

Specification clauses: The fluid micro-concrete micro concrete shall be CHEMPLUG RG, a single component, cement-based material to which only the site-addition of CHEMPLUG RG, a single component, cement-based material to which only the site-addition of clean water (and approved graded coarse aggregates where specified) shall be permitted. The repair grout in the flowable consistency should achieve a compressive strength of not less than 8N/mm2 after 24 hours at 300C. Most importantly, the cured micro concrete shall contain no metallic aggregates, or chlorides and shall be shrinkage compensated in the plastic state. The micro concrete shall have a coefficient of thermal expansion similar to that of the host concrete.

Application instructions

Preparation: The unrestrained surface area of the repair must be kept to a minimum. The formwok should include drainage outlets for pre-soaking and, if beneath a soffit, provision for air entering. Provision must also be made for suitable access points to pour or pump the mixed micro-concrete in place. Defective concrete surfaces must be cut back to a sound base. Smooth surfaces should be mechanically roughened. Corroded reinforcing steel should be exposed around its full circumference and cleaned to remove all loose scale and corrosion deposits. It is important to clean the steel to a bright condition. Grit-blasting is recommended.

One coat of APEXBUILD ZINC Primer should be applied on the reinforcing steel. If any discontinuity in the applied film is noticed, one more coat has to be applied. Several hours prior to placing, the concrete substrates should be saturated with clean water. Immediately prior to placing, any free water should be removed. Alternatively, all prepared concrete substrates should be primed using Chembeidge EPbond, a slow - setting epoxy bond aid. APEXBUILD EPbond shall be applied only on dry substrate.

Note: For repair sections generally deeper than 100mm it may be necessary to mix the CHEMPLUG RG with properly graded 5mm to 12mm silt free aggregate to minimize temperature rise. The quantity of aggregate required may vary between 50 - 100% by weight of CHEMPLUG RG depending on the nature and configuration of the repair location.

Mixing: Care should be taken to ensure that CHEMPLUG RG is thoroughly mixed in a forced-action mixer of adequate capacity. Alternatively, mix in a suitably sized drum with a high torque (400/500 rpm) rotary drill fitted with a mixing paddle. It is essential that machine mixing capacity and labor availability is adequate to enable the placing / pumping operation to be carried out continuously. The quantity water required will generally be between 4.5 and 4.75 liter per 25 kg bag of CHEMPLUG RG. The optimum water content should be determined and accurately measured into the mixer.

However it should not exceed 4.75 liter / 25 kg in any case. With the mixer running, slowly empty CHEMPLUG RG bag into the mixer. Mix continuously for 5 minutes, ensuring a smooth even consistency of the mix. Where the addition of graded coarse aggregate has been specified it should be added after the water and CHEMPLUG RG are properly mixed. Mixing should then continue for a further 1 minute to ensure proper dispersion

Form Work: Slurry tight form work that will not deform or leak when subjected to hydraulic pressure imposed by the micro concrete will be fabricated and erected where the material is gravity fed. Provision in the formwork will be made for a suitable feed-hopper at the highest point. Where necessary, provision will be made for air vents to prevent air entrapment. Form work will be coated with APEXBUILD mould release releasing agent prior to fixing.

Placing: The mixed material should be placed immediately. If placed by pump, standard concrete pumping practice should be followed. The pump and pipeline must be primed with cement slurry. Pumping should be commenced immediately after priming. If poured in the form work, avoid air entrapment by pouring from one side only.

Low temperature working: In cold conditions down to 150C, the use of warm water (upto 300C) is advisable to accelerate strength development. Normal precautions for working with cementitious materials in winter should be adopted.

High temperature working: At ambient temperature above 350C the material should be stored in the shade and cold water used for mixing.

Curing: As CHEMPLUG RG is a cement-based repair material, it must be cured immediately after stripping the formwork in accordance with good concrete practice. The use of APEXBUILD AR or any of APEXBUILD's SUPERCURE range of curing compounds, sprayed on the surface of the CHEMPLUG RG in a continuous film, is recommended soon after stripping the form work. In harsh drying conditions, supplementary curing such as wet hessian and/or polythene sheeting must be used.

Estimating

Packaging: CHEMPLUG RG in 25 kg bags.

Yield: CHEMPLUG RG: Approximately 13.5 liter per 25 kg bag. Actual yield per bag will depend on the consistency of CHEMPLUG RG and quantity of coarse aggregate added.

Storage

Shelf life: CHEMPLUG RG has a shelf life of 6 months if kept in a dry store in the original, unopened bags. If stored at high temperatures and/or high humidity conditions the shelf life may be reduced. Precautions

Health and Safety: CHEMPLUG RG contains cement powders which, during normal use, have no harmful effect on dry skin. However, when CHEMPLUG RG is mixed, or becomes damp, alkali is released which can be harmful to the skin. During use, avoid inhalation of dust and contact with skin and eyes. Wear suitable gloves, eye protection and dust masks. The use of barrier creams is recommended. In case of contact with skin, wash with clean water. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately – do not induce vomiting. CHEMPLUG RG is non-flammable.