Dr. Grout T60

Sulphate Resistance, Thixotropic fiber reinforced repair mortar

Description

Dr.Grout T60 is a is a one-component pre-blended thixotropic cement-based mortar composed of sulphate-resistant hydraulic binders, synthetic polyacrylonitrile fibers organic corrosion inhibitors, select aggregates and special water retaining admixture. It is used for the repair of degraded concrete structures or reinforced concrete structures subject to sulphate attack.

Applications

- Repair and reconstruction of concrete coverings damaged by corroded reinforcing bars
- Canal linings, hydraulic works, repair of concrete water tanks and tunnels that require resistance to sulphate attack
- Pre cast concrete repair
- Repairing concrete with segregation
- Filling of rigid joints (e.g. between base and column, cracks in floors, joints between walls, etc.)
- Vertical and horizontal application
- Grouting tie-rod holes and core holes

Application Procedure

Surface Preparation

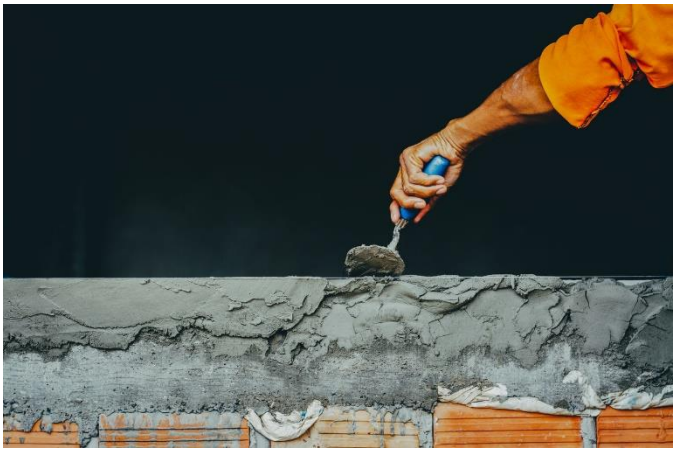
- Remove deteriorated and loose concrete down to the solid, strong and roughened part of the substrate. Any previous repair work that is no longer thoroughly bonded must also be removed.
- Once prepared, the concrete surface to be repaired must have an uneven texture with at least 5 mm peak roughness.
- Sandblast the concrete and the reinforcing bars until they are free of dirt, rust, cement laitance, grease, oil, varnish or old paint.
- Saturate the substrate with water.
- Before repairing with **Dr.Grout T60**, wait until the excess water has evaporated. To facilitate the elimination of free water, use compressed air if needed.

Preparation of the Mix

- Pour into the mixer the amount of water needed to obtain the consistency required for the application

APPLICATION	AMOUNT OF WATER (L/25 KG)
Trowel	Approx. 4.1-4.3
Spray	Approx. 4.2-4.4

- Start the mixer and slowly add **Dr.Grout T60** to the water in a continuous flow.
- Mix for 1 to 2 minutes, then check to make sure the mix is well blended. Scrape any unmixed powder from the bottom and the sides of the mixer. Mix again for another 2 to 3 minutes.
- Depending on the amount needed, a mortar mixer or a drill with an agitator attachment may also be used. Mix at low speed to avoid entraining air.
- Avoid mixing manually unless absolutely necessary. If so, mix small amounts at a time for at least 5 to 6 minutes until a completely homogeneous paste is obtained. Remember that mixing by hand requires a larger amount of water. This adversely affects several of the mortar's properties, including mechanical strength, shrinkage, watertightness, etc.
- Pot Life approx. 1 hour at +20°C.



- The expansion of **Dr.Grout T60** is calculated to compensate for hygrometric shrinkage. For it to be effective, the expansion needs to be restrained by rebars or restraints inserted into the substrate. Buildups of **Dr.Grout T60** without restraints in thicknesses of more than 2 cm should be done only after inserting rebars and roughening the surface of the concrete, taking care to cover the reinforcement with a layer at least 2 cm thick. Lesser thicknesses can be applied without rebars as long as the substrate has been thoroughly roughened to counter the expansion. The expansion phase ends during the first days of hardening.

Mortar Application

Application Thickness: Up to 10 cm/coat (vertical)
Up to 2cm/coat (Ceilings)

Dr.Grout T60 may be applied with a spatula or trowel on vertical surfaces in layers up to 10 cm thick per coat, or on ceilings in layers up to 2 cm thick per coat, without the use of form-work. It may also be applied using a suitable piston or worm-screw type rendering machine, Do not use a continuous mixing type rendering machine. For repairing concrete faces (e.g. balconies, columns, beams, etc.) we recommend treating the rebars after sanding them. When further coats of **Dr.Grout T60** are needed, leave the previous hardened coat rough and wet the surface with water.

Consumption

18.5 kg/m² per cm of thickness if used pure and 14.5 kg/m² if used mixed with 30% of 3 to 6-8 mm aggregate**.**

Storage and Handling

Dr.Grout T60 may be stored for up to 12 months in its original packaging. The product is available in special 25 kg vacuum-packed polyethylene bags which may be stored outside for the entire construction phase of the job. Rain has no effect on its characteristics.

Packaging

25 Kg Bag

Health and Safety

Contains Portland Cement Cause skin irritation & serious eyes damage. May cause an allergic skin reaction. May cause reparatory irritation.

Recommendations & Precautions

- Do not use **Dr.Grout T60** on smooth surfaces: roughen the surface thoroughly and add rebars if necessary.
- Do not add cement or admixtures to **Dr.Grout T60**.
- Do not pour **Dr.Grout T60** into forms for repairing works .
- Do not use **Dr.Grout T60** for anchoring. Use **Dr.Fix EP**
- After applying **Dr.Grout T60**, we recommend that it is cured carefully, especially in hot or windy weather, to avoid the water evaporating too quickly and causing the formation of surface cracks due to plastic shrinkage. Spray water on the surface 8-12 hours after applying the mortar, and repeat the operation (every 3-4 hours) for at least the first 48 hours.

Technical Data

PRODUCT IDENTITY			
Class according to EN 1504-3:		R	
Type:		CC	
Consistency:		Powder	
Color:		Grey	
Maximum size of aggregate (mm):		2.5	
Bulk density (kg/m³):		1350	
Dry solids content (%):		100	
Chloride ions content: – minimum requirement ≤ 0.05% - according to EN 1015-17 (%):		≤ 0.05	
APPLICATION DATA OF PRODUCT (at +20°C - 50% R.H.)			
Color of mix:		Grey	
Mixing Ratio:		100 parts of **Dr.Grout T60** with 16.5-17.5 parts of water (approximately 4.1-4.4 liters of water per 25 kg bag)	
Consistency of mix:		thixotropic	
Density of mix (kg/m³):		2200	
pH of mix:		> 12.5	
Application temperature range:		from +5°C to +35°C	
Pot life of mix:		approximately 1 hour	
Waiting time between each layer:		max 1-2 hours	
FINAL PERFORMANCE (17% mixing water - mixing and compaction according to EN 196-1)			
Performance characteristic	Test method	Requirements according to EN 1504-3 for R4-class mortar	Performance of product
Compressive strength (MPa):	EN 12190	≥ 45 (after 28 days)	20 (after 1 day) 45 (after 7 days) 60 (after 28 days)
Flexural strength (MPa):	EN 196/1	Not Required	4 (after 1 day) 7 (after 7 days) 8 (after 28 days)
Compressive modulus of elasticity (GPa):	EN 13412	≥ 20 (after 28 days)	27 (after 28 days)
Bond strength on concrete (substrate in MC 0.40 - water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	≥ 2 (after 28 days)	> 2 (after 28 days)
Bond strength to substrates determined by shear (MPa):	EN 12615 mod	Not Required	≥ 3.5 (after 7 days) ≥ 5.0 (after 28 days)
Contrasted expansion (µm/m):	UNI 8147 method A	Not Required	400 (after 1 day)

Crack resistance:	**"O-Ring" test**	**Not Required**	**no cracks after 180 days (*)**
Resistance to accelerated carbonation:	EN 13295	depth of carbonation ≤ reference concrete (type MC 0.45, water/cement ratio = 0.45) according to UNI 1766	meets specifications
Impermeability to water – penetration depth - (mm):	EN 12390/8	not required	< 5
Capillary absorption ($kg/m^2 \cdot h0.5$):	EN 13057	≤ 0.5	< 0.25
Slip-resistance of steel reinforcement rods – bonding stress (MPa):	RILEM-CEBFIP RC6-78	not required	> 25
Thermal compatibility measured as bond strength according to EN 1542 (MPa): – freeze-thaw cycles with de-icing salts: – storm cycles: – dry thermal cycles:	EN 13687/1 EN 13687/2 EN 13687/4	≥ 2 (after 50 cycles) ≥ 2 (after 30 cycles) ≥ 2 (after 30 cycles)	> 2 > 2 > 2
Resistance to freeze- thaw cycles in the presence of salts - flaking (g/m^2):	EN 12390/9	not required	< reference concrete
Exposure class:	EN 206/1	not required	X0 XC1, XC2, XC3, XC4 XD1, XD2, XD3 XS1, XS2, XS3 XF1, XF2, XF3, XF4 (**) XA1,XA2,XA3
Reaction to fire:	EN 13501-1	Euroclass	A1

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