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# GRAUTEK EXTRA RAPID

Thixotropic rheoplastic mortar with extra-fast setting and hardening



## DESCRIPTION

GRAUTEK EXTRA RAPID is a premixed mortar based on special hydraulic binders and pure quartz, single-component, to be mixed with water to obtain EXTRA RAPID gripping and hardening thixotropic mixtures. GRAUTEK EXTRA RAPID develops high initial and final mechanical strengths, is waterproof, durable even in highly aggressive environments and guarantees high adhesion to steel and concrete. GRAUTEK EXTRA RAPID contains no metal parts and is chloride-free.

*GRAUTEK EXTRA RAPID is a non-structural repair mortar of type CC and class R4 according to EN 1504-3.*



## GENERAL CHARACTERISTICS

GRAUTEK EXTRA RAPID has been carefully designed to have an extra rapid hardening in the absence of shrinkage in conjunction with a discrete workability, more precisely GRAUTEK EXTRA RAPID once mixed with water has an excellent workability that can vary from 5 to 10 min (depending on the temperature and external humidity) and an excellent thixotropy, than in taking in about 10 minutes under normal conditions (20 °C). The hardened product can be loaded after about an hour and due to its high durability it is ideally suited for both indoor and outdoor applications.

It allows installation even vertically in thicknesses up to 40 mm.

Being part of the special mortars of the Aeternum Line, the product has an excellent impermeability and is particularly resistant to all classes of environmental exposure, especially water and consequently frost.

## ADVANTAGES

Features of GRAUTEK EXTRA RAPID allow:

- Extra fast repair of holes, lacerations, chipping of concrete artifacts (floors, pillars, beams, walls, panels, etc.), restoration of concrete, preservation of passivity.
- Extra rapid grouting of the density defects of hardened concrete as a result of segregation in the fresh state (e.g. gravel nests, replacement of concrete damaged by carbonation).
- Extra fast fixing of manhole covers, pipes, etc.
- Perfect finish
- Can be used up to 40 mm thickness.

## SPECIFICATIONS

Appearance	powder
Color	gray
Aggregate Dmax	0,5 mm
Apparent density	1,2 kg/dm <sup>3</sup>
Chloride ions content (≤ 0.05%)	absent

Optimal performance is achieved at 20°C and 50% RH. Hardening and installation times may vary during the winter period. Respect the indicated mixing ratio and do not use the contents

TECHNICAL DATA SHEET



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of open or damaged bags. Store the product at room temperature for 24 hours prior to application

## APPLICATION SPECIFICATIONS

Powder color	Grey
Powder water	14,5 ÷ 15,5 %
Powder density	2,170 Kg/dm <sup>3</sup>
Powder pH	> 12
Application Temp.	5 – 10 min
Durata impasto	5 – 10 minutes (20°C 50% R.H.)
Total hardening	28 days (at 20°C)
Standby time between layers	5 – 10 min (20°C 50% R.H.)
Application thickness	4 cm (head 2 cm)
Consumption	19 Kg/m <sup>2</sup> per cm thick

## HOW TO USE

### MEDIA CLEANING

- remove all coherent concrete parts from the area affected by the restoration, including the grout lattice through mechanical chiselling or hydrowash, taking care not to damage the structures.
- eliminate stains, efflorescence or impregnation of greasy oil, paints, lime, dust, dirt, etc.;
- remove any previous restoration interventions if irreparably damaged or deteriorated.

### MEDIA PREPARATION

- roughen the surface with mechanical means such as bushing machines, chisels, or hydrodemolition (the latter does not cause damage to the support and is recommended for large surfaces) reaching the healthy and compact concrete to facilitate adhesion between mortar and support. The surface must be roughened with roughness of at least 5 mm, while the edges that delimit the area of the restoration must be scarified to a depth of at least 10 mm with a sharp-edged finish. The roughening of the surface layer is necessary both to favor the adhesion of the mortar and to ensure the correct development of the expansive phenomenon.
- Wet the surface with pressurized water until saturated. This procedure avoids the absorption of dough water by the support, which could cause cracking phenomena and decrease the adhesive capacity of the mortar. The operation also allows the removal of residues due to the roughening of the concrete substrate. Excess water must evaporate completely before resetting.

### PROTECTION OF REINFORCING BARS

- Sandblast the reinforcing rods and remove any incoherent parts such as rust flakes or material fragments that can trigger the corrosion process or affect adhesion. The scarification of the support by hydrodemolition also effectively cleans the irons, making sandblasting unnecessary.
- Protect the reinforcing bars by applying passivating corrosion inhibitor treatment (see PROTEK)

### ADDITIONAL ARMOR

- For coatings with a thickness of more than 2 cm, it is recommended to place an electro-welded mesh equipped with spacers (at least 1 cm from the support) and provide an iron cover of at least 1.5 – 2 cm

### PREPARATION OF MORTAR

The mixing of GRAUTEK EXTRA RAPID mortar is carried out in a concrete mixer on site. Introduce the dough water into the concrete mixer according to the recommended mixing ratio (14.5 ÷ 15.5% clean water): 3.625 – 3,875 liters of water for each 25 kg pack of GRAUTEK EXTRA RAPID.



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Pour the product little by little without interruption, mixing for at least 1 ÷ 2 minutes with a mechanical agitator at low speed until the dough is homogeneous and free of lumps. Check that all the product has been properly mixed and that there is no dust residue on the walls of the concrete mixer.

## APPLICATION

GRAUTEK EXTRA RAPID can be put in place as a trowel. The product should be applied to clean, roughened and saturated surfaces with water as indicated in the previous paragraph. Quickly apply the dough with trowel or spatola: as soon as the mortar takes hold, moisten the surface and finish with trowel. Keep the applied mortar as moist as possible.

For filling large cavities make a mortar in the proportion: 2 parts of GRAUTEK EXTRA RAPID and 1 part of silica or quartz sand. However, remember to always apply a coat of clinging based on our TEKWELD in advance.

## TECHNICAL TIMES

Product workability time mixed with water: 5 – 10 min

Waiting time between hands: 5 – 10 min.

Waiting time before commissioning: about 1 hour.

Under normal temperature conditions (20 – 25 °C) GRAUTEK EXTRA RAPID can be painted with water-based paints and varnishes as early as 1 hour after installation.

## PACKAGING AND STORAGE

GRAUTEK EXTRA RAPID is packed in polythene bags of 25 kg. In the original packaging and properly stored indoors in a dry place, the product retains its characteristics for one year.

## WARNINGS

### IN THE PRESENCE OF HOT CLIMATES

- Store GRAUTEK EXTRA RAPID in the shade;
- Follow the work in the early hours of the morning, interrupting them during the sunniest hours, better to start the work in the late afternoon hours, provided that the structure has been subjected to continuous wetting for at least 6 hours before the start of the work;
- To obtain the maximum performance of GRAUTEK EXTRA RAPID it is necessary to correct seasoning through the use of the additive applied by spray or brush. Since the product guarantees its workability in 5 – 10 minutes from preparation, it is advisable to prepare small quantities of product to prevent it from hardening the product not yet put into operation, especially in summer.

### IN COLD CLIMATES

- Store GRAUTEK EXTRA RAPID in a heated environment if possible;
- Do not install the product at temperatures below 0 °C.;
- Start work in the late morning;
- Make sure the stand is not frozen.
- Saturation of the substrate with water: carry out all the operations of preparation of the substrate and saturate the concrete or brick with water for at least 6 continuous hours before laying GRAUTEK EXTRA RAPID. The free water on the surfaces must be removed with compressed air or rags.
- Since the product guarantees its workability in 5-10 minutes from preparation, it is advisable to prepare small quantities of product to prevent it from hardening the product not yet put into operation, especially in summer.



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## DETERMINATIONS ON HARDENED PRODUCT.

Requirements according to EN 1504-3

- class R4 mortars

### Bending strength (sec. EN 12190)

- after 1 hour: 1.00 MPa
- after 2 hours: 1.50 MPa
- after 8 hours: 2.00 MPa
- after 1 day: 2.50 MPa
- after 3 days: 3.00 MPa
- after 7 days: 4.00 MPa
- after 28 days: 7.00 MPa

### Compressive strength

- after 1 hour: > 4.00 MPa
- after 4 hours: > 8.00 MPa
- after 8 hours: > 10.00 MPa
- after 24 hours: > 26.00 MPa
- after 28 days: > 45.00 MPa

### Elastic modulus in compression

(sec. EN 13412):  
20 GPa

### Adhesion to concrete (sec. EN 1542)

- on dry concrete: 2.1 MPa
- on wet concrete: 2,2 Mpa

### Adhesion to concrete (sec. EN 12617-4)

- dry after 56 days: 2.4 MPa
- in water after 56 days: 1.8 Mpa

### Reaction to fire (sec. EN 13501-1):

Class A1

## PERFORMANCE CHARACTERISTICS DOUGH WATER 14,5 % (3,625 l/bag of product)

PERFORMANCE CHARACTERISTIC	TEST METHOD	REQUIREMENTS ACCORDING TO EN1504-3 FOR CLASS R4 MORTARS	PRODUCT PERFORMANCE
COMPRESSIVE STRENGTH (MPa)	EN 12190	≥ 45 (after 28 days)	>4 MPa at 1h > 8 MPa to 4h > 26 MPa per 1 d' > 45 MPa at 28 days
FLEXURAL STRENGTH (MPa)	EN 196/1	Nobody	1 MPa at 1h 2 MPa at 8h 2,5MPa at 1 dd 8 MPa at 28 days
ADHESION TO CONCRETE (support type MC 0.40 ratio a/c=0.40 according to EN 1542)	EN 1542	≥ 2 (after 28 days) >2.4	>2.4 mpa
REACTION TO FIRE	EN 13501-1	Euroclass A1	A1

## LEGAL

The information contained in this technical sheet, although representing the most advanced stage of knowledge, does not exempt the user from carrying out accurate preliminary tests in his own conditions of use and operation. We therefore decline any responsibility for the improper use of the product.

