

## Rinfor Grout Col

Ultra-high performance fibre-reinforced micro-concrete



Rinfor Grout Col is a special cementitious formulation, being fibre-reinforced with READY MESH technology, enriched with reactive microsiliates with very high pozzolanic activity and special crystalliser additives that increase the end result and the durability. Mixed with water, it is able to forge micro-concretes with pourable rheology. Once hardened, the product offers exceptional physical-mechanical and ductility values. Ideal for the reinforcement and seismic adaptation of flooring in reinforced concrete, brick-concrete or corrugated sheeting or wood, by constructing a thin extrados structural screed along with beams, pillars, structural crosspoints and walls, by means of suitable liners.

**CUSTOMS CODE:** 3824 5090

**COMPONENTS:** Single-component

**APPEARANCE:** Powder

**AVAILABLE COLORS:** Gray

**PACKAGING AND DIMENSIONS:** Bag 25 kg - Pallet: 50 x (Bag 25 kg)

### OBTAINED CERTIFICATIONS AND REGULATIONS



### FEATURES AND BENEFITS

The rheological and physical-mechanical characteristics of the Rinfor Grout Col product render it extraordinarily effective in reinforcing structural elements in reinforced concrete and masonry. Adhered to the inside of caissons, confined within cavities or spread out over the extrados of foundations and lofts, Rinfor Grout Col allows for low thickness structural reinforcing, substantially devoid of additional metallic reinforcement. Rinfor Grout Col belongs to the HPFRC (High Performance Fibre Reinforced Concrete) family, permitting the structural designer to make use of the following characteristics: - Exceptional resistance and traction as well as exceptional values of shear stress adhesion on various supports which have been suitably roughened; - advantages in structural calculations prescribed for fracture mechanics, resistance to traction and of the ultimate material deformation; - minimum thicknesses applied with reinforcing effects which have been distinctly improved as against interventions with traditional reinforced concrete; - highly notable reduction of mass and minimizing of additional loads applied for structural reinforcing as against interventions with traditional reinforced concrete (practically nil additional loads in the case of the thickness of the coating corresponding with the depth of sacrificed surface); - anti-carbonation barrier (practically zero penetration of CO<sub>2</sub>) and anti-oxidant barrier; - auto-healing of any micro-fissures exposed to contact with fluids, thanks to the particular crystallising additives; - increment of durability of the structures repaired with Rinfor Grout Col, thanks to the migration effect of the crystallising additives; - very high resistance to fire; - eco-sustainability - made up of 100% mineral and metallic materials, totally recyclable at end of life. From the environmental point of view, the Rinfor Grout Col product is characterised by the following advantages: - Ecological packaging (card-cardboard) - product based on hydraulic binders, selected aggregates and mineral additives with content of organic raw materials < 1% - practically nil VOC emissions during installation; once hardened, nil VOC emissions. - containing a fraction > 5% of sub-products from the production industry 100% recyclable at end of life.

## FIELDS OF APPLICATION

- For seismic adaptation with absorption and transfer of pressure or traction during events with elevated dynamic forces (seismic, impacts, deflagration); - for structural reinforcing and seismic upgrading through coating of beams, pillars structural ties, walls; - for reinforcing and seismic upgrading with external, low thickness, structural screed for lofts in reinforced concrete, concrete masonry, corrugated sheeting, wood; - for fabrication of light, thin section, structural elements; - for the repair of flooring with need for resistance against elevated static and dynamic stresses, together with exceptional values of resilience and resistance to impacts; - for reinforcing and precision anchoring of heavy and highly stressed machinery: E.g. wind turbines, turbines, precision machinery, etc.

## ALLOWED SUPPORTS

Concrete - Wood - Brickworks - Stone walls - Floor screed - Steel

## PREPARATION OF SUPPORTS

The support must be in good condition, clean, sufficiently coarse, without crumbling parts or dust, pressure washed and saturated with water before application. With concrete, the abrasiveness of the support must be > 3mm; to obtain this level of coarseness, techniques of hydro-scarifying, bush-hammering, mechanical chiselling, sand blasting with large grain may be considered. With the case of surfaces in strongly absorbent brick-work (lofts in brick cement with surfacing of parts in brick) or in the case in which it is impossible to saturate the support with water, contact our technical services to evaluate suitable adhesion primers, such as Syntech Pavisheer or Syntech RGS. Above all, when used as a surface covering of lofts in concrete, or as a repair to industrial flooring, providing anchoring roots by drilling the support is particularly useful for increasing resistance to cuts and adhesion to the support (diameter 18-20 mm, depth 20 mm), and accurately cleaning the surfaces of the holes before spreading the Rinfor Grout Col.

## MODE OF USE

With regard to pouring in summer weather (hot, arid, windy) or in winter climates (cold, windy, frigid temperatures around 0C) all the prescriptions and recommendations notified in the STRUCTURAL CONCRETE GUIDE LINES (Ministry of Public Works) are valid. For coating, to reinforce beams structurally, pillars, ties, etc., use reinforced casings given the strong pressure exerted by the product. Use an efficient mixer with vertical axis (or efficient drill with mixing head for mixing a single pack in a bucket). Mix with effective vertical axis mixers for not less than 8-9 minutes.

For caisson pours, aid the filling process with light tapping with a rubber hammer on the caissons.

For pours in lofts, help the spreading and levelling with spreaders and cover the casts as soon as possible with waterproof canvas or with anti-evaporation coverings such as QL Nano Lithium.





## APPLICATION METHODS




Pour out

## TOOL CLEANING

Water

## KEY FEATURES

-  Density: 2420 kg/m<sup>3</sup>
-  Mix with water: 10 - 12 %
-  Shelf-life: 12 months
-  Use wearing protective gloves

-  Maximum diameter of aggregate: 2 mm
-  Pot-life: 50 - 75 min
-  Temperature of use: + 5 / + 35 °C



## TECHNICAL SPECIFICATIONS

*UNI EN 12190*

Compressive strength at 2 days > **65 N/mm<sup>2</sup>**

*UNI EN 12190*

Compressive strength after 28 days **130 N/mm<sup>2</sup>**

*UNI EN 196/1*

Flexural strength after 28 days > **27 N/mm<sup>2</sup>**

*UNI 6135*

Breaking load longitudinal > **7 N/mm<sup>2</sup>**

*UNI EN 14651*

Measuring the flexural tensile strength (limit of proportionality, residual) fr3k (gap opening 2.5 mm) **6.7 N/mm<sup>2</sup>**

*UNI EN 14651*

Toughness class EN 14651 **9b**

*UNI EN 1542*

Adhesion to substrate > **3 N/mm<sup>2</sup>**

Access with maximum stress **3 day**

*EN 13412*

Static elastic modulus **38 GPa**

Water penetration depth < **0.5 mm**

Endogenous withdrawal < **0.05 %**

Resistant to freezing/thawing cycles in the presence of salts/chlorides

Resistant to chemical agents

*UNI EN 12190*

Compressive strength after 7 days > **90 MPa**

*UNI EN 196/1*

Flexural strength after 7 days > **20 MPa**

*UNI EN 12390-3*

Compressive strength **C 90/105**

*UNI EN 14651*

Measuring the flexural tensile strength (limit of proportionality, residual) fr1k (gap opening 0.5 mm) **9.0 N/mm<sup>2</sup>**

*UNI EN 14651*

fr3k / fr1k ratio **0.74**

*metodo del cuneo a 45°*

Shear strength > **16 N/mm<sup>2</sup>**

*a 20 °C*

Access for traffic light **24 h**

*UNI EN 12664*

Thermal conductivity **0.85 W/mK**

*a 20 °C*

Walkability **8-12 h**

Removal of formworks **24-48 h**

*T 20 °C e U.R. 50%*

Free-phase withdrawal/expansion **±10**

Resistant to sulphates

## CONSUMPTION

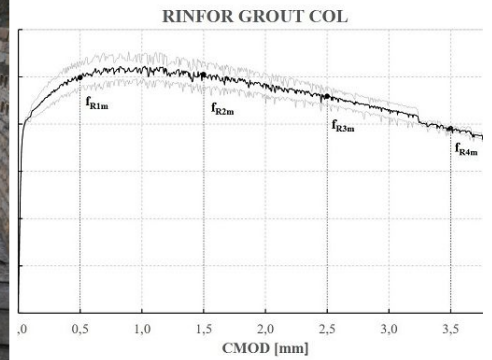
Approximately 22 kg/m<sup>2</sup> of Rinfor Grout Col for every centimetre of thickness to be implemented (approximately 2200 kg per cubic metre).

## STORAGE AND CONSERVATION

Inadequate storage of the product may result in a loss of rheological performance. Protect from humidity.



## PHOTO GALLERY



## WARNINGS AND PRECAUTIONS

The general information, along with any instructions and recommendations for use of this product, including in this data sheet and eventually provided verbally or in writing, correspond to the present state of our scientific and practical knowledge. Any technical and performance data reported is the result of laboratory tests conducted in a controlled environment and thus may be subject to modification in relation to the actual conditions of implementation.

Azichem Srl does not assume any liability arising from inadequate characteristics related to improper use of the product or connected to defects arising from factors or elements unrelated to the quality of the product, including improper storage. Those wishing to utilise the product are required to determine prior to use whether or not the same is suitable for the intended use, assuming all consequent responsibility.

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It is forbidden to dispose of the product and/or packaging in the environment.

