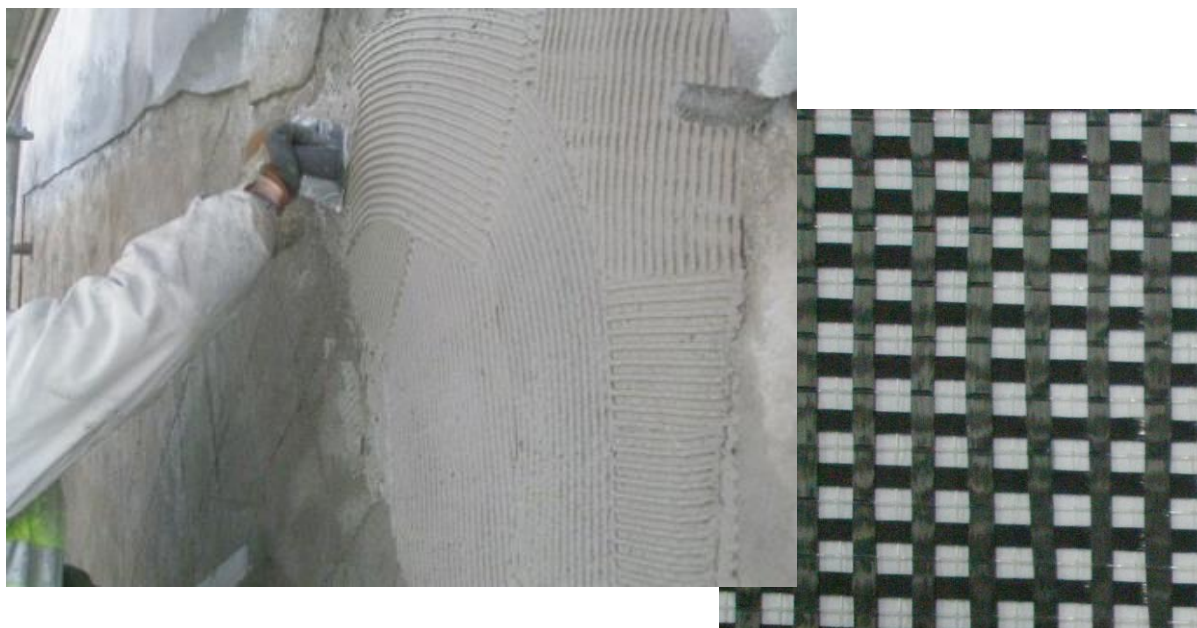




CONCRESEAL[®] **CARBOFIX**

CEMENTITIOUS FIXING MORTAR FOR CARBON FIBER MESH DRIZORO[®] CARBOMESH



DESCRIPTION

CONCRESEAL[®] CARBOFIX is a low-modulus cement-based mortar, specifically designed to be used as part of a system for fixing carbon fiber mesh **DRIZORO[®] CARBOMESH** on all types of substrates in repair and strengthening works.

- Shear and torsion strengthening of beams.
- Improvement of beams against cracking limit state.
- Strengthening retaining walls, storage silos in industries, etc.

APPLICATION FIELDS

- Repair of damaged structures by accidents and pathologies, old buildings subject to dynamic movements due to earthquakes, violent impacts or explosions.
- Strengthening of structures due to change of use, wrong designs or improper execution.
- Repair and strengthening of architectural elements in historical buildings and old structures: walls, vaults, domes, slabs, etc.
- Confinement of concrete knots and connections between beams and pillars, for increasing its ductility.

ADVANTAGES

- Suitable to be applied on wet surfaces, it does not need dry substrate. Perfect system for marine environment conditions.
- It does not create a vapour barrier, allows the water vapour permeability of the substrate.
- Resistant to UV-rays and weathering. Perfect for outdoor jobs. It is not affected by corrosion.
- High thermal resistance and fire classification similar to concrete.
- Allow the flexural, shear and compression strengthening of a great variety of structural elements by confinement of them.

- Low thickness solution for the cross-section of the structural elements. It maintains the geometry and appearance of the element.
- Easy and quick to apply, saving labour costs and reducing use of auxiliary tools.
- Allows application on different substrates such as concrete, bricks, masonry, etc.

APPLICATION INSTRUCTIONS

Substrate preparation

Concrete surface must be properly prepared in order to ensure the optimum adhesion of the system, by using abrasive disc or sandblasting, removing old paints, gypsum, efflorescences, plasters, grout surfaces, fats, oils, concrete release, demoulding agents or any other substance which could affect the adhesion. The optimal surface texture is the closest to open pore sandpaper.

Concrete: Substrate must be structurally sound. Its strength should be verified by test. Thus, minimum pull-off strength should be greater than 1,0 MPa, according to EN 1542.

In case of corroded rebars, remove all concrete around the affected reinforcements, clean up of rust and scale (St-2 grade) and then, treat with the oxide converter and anti-corrosive protection **MAXREST® PASSIVE** (Technical Bulletin no. 12). In order to repair the area, use a structural repair mortar such as **MAXREST®** (Technical Bulletin no. 4) or **MAXRITE® 500/-700/-S/-F** (Technical Bulletin no. 50, 51, 57 and 240, respectively).

Cracks wider than 0,3 mm must be treated by injecting a suitable low-viscosity epoxy-based resin such as **MAXEPOX® INJECTION** (Technical Bulletin no. 78) or **MAXEPOX® INJECTION -R** (Technical Bulletin no. 79) depending on temperature.

In reinforcements by confinement of pillars and by shearing of beams, corners and edges of the element must be rounded (chamfered) to a radius greater than 3 cm, with a desirable of 50 cm to prevent a significant reduction in the tensile strength of the system. Carbon fiber strengthening is not effective around sharp edges.

Brick fabric, mortar, stone masonry: Substrate must be structurally sound. Its strength should be verified on-site. If necessary, repair with **MAXREST®** (Technical Bulletin no. 4) or **MAXRITE® 500/-700/-S/-F** (Technical Bulletin no. 50, 51, 57 and 240, respectively).

Fissures and cracks must be injected with injection mortar **MAXGROUT® INJECTION** or **MAXINJECTION® CAL** as appropriate.

Wood: it must be solid and free of any biological attack. It should be protected in accordance with Wood Structures Code CTE-DB-SE-M. Sand the

Surface, vacuum the dust and repair any damage with the epoxy-based mortar **MAXEPOX® -W** (Technical Bulletin no. 207) or **MAXEPOX® JOINT** (Technical Bulletin no. 237) if necessary.

Steel: Prepare surface by dry shot or sand blasting to Sa 2½ grade (near to white metal) according to Swedish Standard SIS 055900 or equivalent, in order to remove fats, oils, paints and other pollutants that may affect the adhesion of the system. If additional anti-corrosion protection is required, apply **MAXREST® PASSIVE** (Technical Bulletin no. 12) or **MAXEPOX® AC** (Technical Bulletin no. 121).

DRIZORO® CARBOMESH preparation

Cut the mesh by scissor in widths and lengths according to project specifications. Store in a place free of dust, not being folded or wrinkled.

A 25 kg bag of **CONCRESEAL® CARBOFIX** requires from 4,5 to 5,0 litres of clean water, depending on existing ambient conditions and desired consistency. Pour the required amount of water in a clean container and then slowly add **CONCRESEAL® CARBOFIX** to the liquid and mix, using a slow speed electric drill (400-600 rpm) fitted with a disc mixer, for about 1-2 minutes until achieving a homogeneous and lump-free mortar. Allow the mixture to rest for 5 minutes and remix briefly before applying. Mix only the amount material that can be placed in about 20-30 minutes. Within this time, if necessary to restore the workability, remix again the mortar briefly but never add more water.

Wet previously substrate plenty of clean water until saturation. Apply by trowel a continuous and uniform layer of **CONCRESEAL® CARBOFIX** with a consumption of 3,0-4,0 kg/m², making sure that thickness is about 2 mm. Over this layer, on fresh, place immediately the carbon fiber mesh embedding it in the mortar and finally cover with a new layer of **CONCRESEAL® CARBOFIX** with a consumption of 3,0-4,0 kg/m², making sure that thickness is about 2 mm. If several meshes overlap, repeat the operation in the same way until the required number of layers is completed.

For confinement of pillars, a 10 cm overlap of meshes should be carried out in longitudinal and transverse direction to maintain continuity of effort.

Application conditions

Do not apply when rain and/or contact with water, humidity, condensation, dew, etc. is expected within 24 hours after the application.

The optimum temperature range for applications is from 10°C to 30°C. Do not apply with substrate and/or ambient temperature is at or below 5°C, or when temperatures are expected to fall below 5°C within 24 h. If temperature is higher than 35°C,

avoid direct exposure to sunlight and use shaded areas for the application. The open time for the application in these conditions is reduced (see enclosed Technical Data table).

Curing

Prevent quick drying of **CONCRESEAL® CARBOFIX** and protect it from high temperatures (>30°C) with strong wind and direct sunlight in order to keep its moisture for at least 2 hours after application, spraying a fine mist of water, without causing a wash out of surface, and cover with wet burlap or plastic films.

Total curing time of **CONCRESEAL® CARBOFIX** is 28 days.

Cleaning

All tools must be cleaned with water after use. Once it cures can only be removed by mechanical methods.

CONSUMPTION

Estimated consumption of **CONCRESEAL® CARBOFIX** is from 6,0 to 8,0 kg/m² per layer of carbon fiber mesh, depending on type of substrate and surface conditions.

IMPORTANT INDICATIONS

- Masonry fabric, plasterings and mortars on which the system is applied must be tested previously to check the pull-off strength values.

- Do not add solvents, aggregates, additives or other compounds during mixing. Do not use leftovers from previous mixes to make a new one.
- For other uses not specified on this Technical Bulletin or further information, consult the Technical Department.

PACKAGING

CONCRESEAL® CARBOFIX is supplied in 25 kg bags. It is available in colour grey.

STORAGE

Twelve months in its original unopened packaging. It must be stored in a dry and covered place, protected from humidity and freezing, with temperatures above 5°C.

SAFETY AND HEALTHY

CONCRESEAL® CARBOFIX is non-toxic but it is an abrasive compound. Avoid contact with eyes and skin, as well as inhalation of dust.

Safety Data Sheet of **CONCRESEAL® CARBOFIX** is available by request.

TECHNICAL DATA

Product characteristics	
General appearance and colour	Grey powder
Maximum aggregate size, (mm)	< 0,5
Density for powder, (g/cm ³)	1,35 ± 0,1
Density for fresh mortar, (g/cm ³)	1,85 ± 0,1
Mixing water, (% by weight)	19 ± 1
Application and curing conditions	
Minimum application temperature for substrate and ambient, (°C)	> 5
Pot life at 20°C and 50% R.H., (min)	20-30
Setting time at 20°C and 50% R.H., (h)	
-Initial	3-4
-Final	5-6
Curing time at 20°C and 50% R.H., (d)	28
Cured product characteristics	
Compressive strength at 28 days, EN 12190 (N/mm ²)	≥ 20
Flexural strength at 28 days, EN 196-1 (N/mm ²)	≥ 5,5
Elasticity modulus, EN 13412 (N/mm ²)	< 10.000
Adhesion on concrete at 28 days, EN 1542 (N/mm ²)	≥ 1,5
Reaction to fire, EN 13501-1 (Euroclass)	A1

GUARANTEE

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DRIZORO, S.A.U.

C/ Primavera 50-52 Parque Industrial Las Monjas

28850 TORREJON DE ARDOZ – MADRID (SPAIN)

Tel. (+34) 91 676 66 76 - (+34) 91 677 61 75 Fax. (+34)91 675 78 13

e-mail: info@drizoro.com Web site: drizoro.com