

High performance glass fibre system for underwater strengthening & retrofitting

Uses

Nitowrap UW is a glass fibre composite system for strengthening & retrofitting of load bearing structures particularly where enhancement of axial load, shear & flexural strength is required. It is ideal for seismic retrofitting also. Typical applications include piers, columns, beams, retaining walls, piles, tunnels, etc which are either fully or partially underwater.

Advantages

- Very high strength to thickness or weight ratio - Appreciable increase in strength and load carrying capacity without significant increase in dead load
- Enhanced stiffness, shear & tensile capacities - Increased load carrying capacity and better resistance to seismic forces and deflection.
- Chemical resistant – Excellent resistance to acids, alkalis chlorides etc.
- Flexible- Can be applied on any shape or contour of substrate
- Thin sections - Can be effectively used in space constrained areas.
- Economical- Easy to install, time & labour saving
- Resistant to biological growth like fungus, algae, barnacle etc.

Description

Nitowrap UW is a glass fibre composite wrapping system where Nitowrap GF is used in conjunction with a high build under water epoxy saturant Nitowrap 410 UW.

Properties

Nitowrap GF	Type I	Type II
Weight of fibre	920 g/m ²	750 g/m ²
Density of fibre	2.6 g/cc	2.6g/cc
Fibre thickness	0.90 mm	0.6mm
Fibre orientation	Unidirectional	Unidirectional
Nominal thickness per layer	1.5 mm	1mm
Tensile strength	3400 N/mm ²	3400 N/mm ²
Tensile modulus	73,000 N/mm ²	73,000 N/mm ²

Nitowrap 410 UW Saturant

Viscosity	Thixotropic
Density	1.25 - 1.26 g/cc
Pot Life (Above water)	20 mins @30°C
Pot Life (Below water)	35 mins @ 30°C
Cure time	7 days @ 30°C

Product	WFT (microns)	DFT (microns)	Practical coverage Per coat/Ltr.
Nitowrap 410	350	350	2.0 m ²

Nitowrap UW

Application instructions

Surface preparation

Concrete surfaces to be treated shall be free from oil residues, barnacle, algae, fungus, grout holes, protrusions & any other marine deposits. The concrete surface to be wrapped shall be structurally repaired prior to treatment, for corrosion induced damage/ structural damage, by suitable underwater epoxy grouting and epoxy/polymer modified Renderoc repair mortar systems. Any depressions in the concrete substrate shall be repaired with Exposeal UW epoxy putty to even out undulations.

Mixing

Before mixing, the contents of each can should be thoroughly stirred to disperse any settlement, which may have taken place during storage. The base and hardener are emptied into a suitable container and the material is thoroughly mixed for at least 3 minutes. Mechanical mixing using a heavy-duty slow speed (300 - 500 rpm), flameproof drill, fitted with a mixing paddle is recommended.

Application

The Nitowrap GF shall be cut to the required size & shape. A polythene sheet shall be spread on the levelled firm substrate.

Saturant

The mixed material of Nitowrap UW saturant shall be applied on to the polythene sheet and thickness shall be 350 microns. Then glass fibre shall be spread and rolled with wooden roller so that the saturant is impregnated into the fibre. On the top of the fibre one more coat of saturant is applied at 350 microns and rolled to remove entrapped air without causing any disturbance to the fibre. The wet film thickness shall be maintained @ 350 microns. The sandwiched layer of glass fibre shall be taken under water and wrapped on to the substrate profile and pressed by gloved hand. Then rolling shall be carried out to ensure thorough bonding of fibre to the substrate.

The same procedure shall be followed for multiple layer fibre strengthening & retrofitting.

Curing

The wrapping will become tack free in approximately 12 hours and be fully cured in 7 days.

Cleaning

Tools and equipments should be cleaned with Nitoflor Sol, solvent immediately after use. Hands and skin shall be washed with soap, or an industrial hand cleaner.

Limitations

Nitowrap UW is only recommended for use as described in the uses section of this datasheet. The performance of Nitowrap UW is limited to the specifications and recommendations as described in this datasheet.

Estimating

Packaging

Nitowrap Glass Fibre is supplied in rolls of 1m width & around 43 to 44m length.

Nitowrap 410 UW	-	4 L
Nitoflor Sol	-	5 & 20 L

Storage

Shelf life

All the above products have a shelf life of 12 months if stored in unopened containers below 35°C.

Precautions

Health and safety instructions

Some people are sensitive to epoxy resin systems and may develop dermatitis on skin contact. Rubber gloves and/or barrier creams, protective clothing, goggles and respirator shall be worn while handling the materials. Sufficient mechanical and/or local exhaust ventilation shall be provided to maintain easy working conditions. If contact with skin or eyes occurs, washing with plenty of water is suggested. Solvent should not be used. If irritation persists, immediate medical advice shall be sought. Smoking is prohibited during application/ handling of the product.

Gloves & protective clothing shall be worn while handling & application of Nitowrap GF fabric.

Application shall be carried out by authorised & trained divers.

Nitowrap UW

Flash Point

Nitowrap 410 UW	65°C
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Nitoflor Sol solvent	33°C
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Additional information

The Fosroc range of associated products includes admixtures, curing compounds, flooring systems, precision grout, repair mortars, protective coating, joint sealants, waterproofing systems & echem solutions.

Separate datasheets are available on these range of products.

Important note :

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard terms and conditions of sale, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation specification or information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products whether or not in accordance with any advice, specification, recommendation or information given by it.



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