



# Nitowrap EP(GF)

## High performance high strength, glass fibre system for structural strengthening

### Uses

Nitowrap EP(GF) is a glass fibre composite system for strengthening columns, beams and slabs of load bearing structures particularly where improvement to shear strength and deformation characteristics is required. It is ideal for seismic retrofitting also. Typical applications include piers, columns, beams, slabs, retaining walls, masonry bridges, pipes, chimneys, tunnels and other structures.

### 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 and alkalis
- **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

### Description

Nitowrap EP(GF) is a glass fibre composite wrapping system where Nitowrap GF is used in conjunction with an epoxy sealer cum primer, Nitowrap 30, and a high build epoxy saturant Nitowrap 410. The system is protected by a polyurethane top coat of Nitowrap 512 in case of atmospherically exposed structures.

### Properties

Nitowrap GF	Type I	Type II
Weight of fibre	920 g/m <sup>2</sup>	750 g/m <sup>2</sup>
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 <sup>2</sup>	3400 N/mm <sup>2</sup>
Tensile modulus	73,000 N/mm <sup>2</sup>	73,000 N/mm <sup>2</sup>

### Nitowrap 30 Primer

Density	1.14 g/cc
Pot life	25 mins @ 27°C
Full cure	7 days

### Nitowrap 410 Saturant

Colour	Pale yellow to amber
Application temperature	15°C - 40°C
Viscosity	Thixotropic
Density	1.25 - 1.26 g/cc
Pot Life	2 hours at 30°C
Cure time	5 days at 30°C

### Nitowrap 512

	UV resistant top coat
Pot life at 30°C	min 1 hr
Recoat time at 30°C	2 - 4 hrs
Initial time at 30°C	16 hrs
Final time at 30°C	5 days
Colour	Available in range of colours

Product	Color	Pot Life @ 30°C	WFT (microns)	DFT (Microns)	Indicative coverage Per coat/Ltr.
Nitowrap 30	Clear	20 min.	100	100	8.0-10.0 m <sup>2</sup>
Niotwrap 410	Amber	120 min.	250	250	3.5-4.0 m <sup>2</sup>
Nitowrap 512	Grey	60 min.	100	45	8.0-10.0 m <sup>2</sup>

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Application thickness	-	90-100 microns DFT in 2 coats
Mixed density	-	1.30 g/cc
Mixed viscosity	-	2 - 4 poise

## Application instructions

### Surface preparation

Concrete surfaces to be treated shall be free from oil residues, demoulding agents, curing compounds, grout holes and protrusions. The concrete surface to be wrapped shall be structurally repaired prior to treatment, for corrosion induced damage/ structural damage, by epoxy grouting and epoxy/ polymer modified Renderoc repair mortar systems. Any depressions in the concrete substrate shall be repaired with Nitocote VF/Nitomortar FC 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.

### Primer

The mixed material of Nitowrap 30 epoxy primer is applied over the prepared and cleaned surface. The application shall be carried out using a brush and allowed to dry for about 24 hours before application of saturant.

### Saturant

The mixed material of Nitowrap 410 saturant is applied over the tack free primer. The wet film thickness shall be maintained @ 250 microns.

### Nitowrap GF

The Nitowrap GF shall be cut to required size and then pressed first by gloved hand on to the saturant applied area and then with a stiff spatula or a surface roller to remove air bubbles.

One more coat of Nitowrap 410 saturant is applied over the glass fabric, Nitowrap GF at 250 microns WFT after a minimum time lapse of 30 minutes.

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

### Top protective coat

If UV resistance is required then two additional coats of two component aliphatic polyurethane coating Nitowrap 512 shall be applied as topcoat. The WFT shall be 100 microns per coat.

### Curing

The coatings will become tack free in approximately 4 - 6 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 EP(GF) is only recommended for use as described in the uses section of this datasheet. The performance of Nitowrap EP(GF) is limited to the specifications and recommendations as described in this datasheet.

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## Estimating

### Packaging

Nitowrap Glass Fibre is supplied in rolls of 1m width by 43.9 m length. i.e., 43.9 m<sup>2</sup> per roll.

Nitowrap 30	-	3.5 L
Nitowrap 410	-	4 L
Nitowrap 512	-	4 L
Nitoflor Sol	-	5 & 20 L

### Coverage

Please refer to the table given under 'Properties' for individual product coverage. However, the practical coverage may vary depending on the surface conditions.

### 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.

## Flash Point

Nitowrap 30 Primer	25°C
Nitowrap 410 saturant	65°C
Nitowrap 512 topcoat	35°C
Nitoflor Sol solvent	33°C

## 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.

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### Important note :

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