BUILDING TRUST

PRODUCT DATA SHEET

SikaWrap®-440 G BI

Woven bidirectional glass fibre fabric, designed for structural strengthening applications as part of the Sika® strengthening system

DESCRIPTION

SikaWrap®-440 G BI is a bidirectional woven glass fibre fabric made with high strength glass fibres, designed for installation using the wet application process.

USES

SikaWrap®-440 G BI may only be used by experienced professionals.

Structural strengthening of reinforced concrete, masonry, brickwork and timber elements or structures, to increase axial, flexural and shear loading capacity for:

- Improved seismic performance of masonry walls
- Replacing missing steel reinforcement
- Increasing the strength and ductility of columns
- Increasing the loading capacity of structural elements
- Enabling changes in use / alterations and refurbishment
- Correcting structural design and / or construction defects
- Increasing resistance to seismic movement
- Improving service life and durability
- Structural upgrading to comply with current standards
- Blast mitigation (accidents or terrorism)
- Electrical environments that ask for non-conductive material

CHARACTERISTICS / ADVANTAGES

- Manufactured with heat-set weft fibres to keep the fabric stable
- Multifunctional fabric for use in many different strengthening applications
- Flexible and accommodating to different surface planes and geometry (beams, columns, chimneys, piles, walls, soffits, silos etc.)
- Low density for minimal additional weight
- Cost effective in comparison to traditional strengthening techniques
- Very low electrical conductivity

PRODUCT INFORMATION

Construction	Fibre orientation	+45°/-45° (bidirectional)
	Warp	White glass fibres 95 %
	Weft	White thermoplastic heat-set fibres 5 %

Packaging		**Fabric length per roll**	**Fabric width**
	1 roll in cardboard box	≥ 100 m	1250 mm

Fibre type	E-glass fibres
Shelf life	24 months from date of production
Storage conditions	Store in undamaged, original sealed packaging, in dry conditions at temperatures between +10 °C and +35 °C and humidity between 35 and 85 %. Protect from direct sunlight.
Dry fibre thickness	0.155 ± 0.03 mm
Area density	440 g/m² ± 30 g/m² (glass fibres only)
Dry fibre density	2.62 g/cm³

TECHNICAL INFORMATION

Dry fibre modulus of elasticity in tension	80 000 N/mm²
Dry fibre tensile strength	3 750 N/mm²
Dry fibre elongation at break	4.8 %
Laminate nominal thickness	0.155 ± 0.03 mm

SYSTEM INFORMATION

System structure

The system build-up and configuration as described must be fully complied with and may not be changed.

Concrete substrate adhesive primer	Sikadur®-330 IN
Impregnating / laminating resin	Sikadur®-330 IN or Sikadur®-300 IN
Structural strengthening fabric	SikaWrap®-440 G BI

For detailed information on Sikadur®-330 IN or Sikadur®-300 IN, together with the resin and fabric application details, please refer to the Sikadur®-330 IN or Sikadur®-300 IN Product Data Sheet and the relevant Method Statement.

APPLICATION INFORMATION

Consumption

Wet application with Sikadur®-330 IN as primer and Sikadur®-300 IN as impregnating resin:

Fabric impregnation	0.5–0.7 kg/m²
First layer fabric including primer	1.2–1.6 kg/m²
Following fabric layers	0.7 kg/m²

Note: Consumption is for standard application only. Rough or uneven substrate surfaces, fabrics crossings, loss and wastage can lead to a higher resin consumption.
Please also refer to the relevant Method Statement for further information.

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

FURTHER DOCUMENTS

Method Statements
Ref. 850 41 03: SikaWrap® manual wet application
Ref. 850 41 04: SikaWrap® machine wet application

IMPORTANT CONSIDERATIONS

- SikaWrap®-440 G BI shall only be applied by trained and experienced professionals.
- A specialist structural engineer must be consulted for any structural strengthening design calculation.
- SikaWrap®-440 G BI fabric is coated to ensure maximum bond and durability with the Sikadur® adhesives / impregnating / laminating resins. To maintain and ensure full system compatibility, do not interchange different system components.
- SikaWrap®-440 G BI can be over coated with a cementitious overlay or other coatings for aesthetic

and / or protective purposes. The over coating system selection is dependent on the exposure and the project specific requirements. For additional UV light protection in exposed areas use Sikagard®-550 W IN, Sikagard® PU UR or Sikagard®-680 S.
- Please refer to the Method Statement of SikaWrap® manual wet application (Ref. 850 41 03) or SikaWrap® machine wet application (Ref. 850 41 04) for further information, guidelines and limitations.

ECOLOGY, HEALTH AND SAFETY

REGULATION (EC) NO 1907/2006 - REACH

This product is an article as defined in article 3 of regulation (EC) No 1907/2006 (REACH). It contains no substances which are intended to be released from the article under normal or reasonably foreseeable conditions of use. A safety data sheet following article 31 of the same regulation is not needed to bring the product to the market, to transport or to use it. For safe use follow the instructions given in this product data sheet. Based on our current knowledge, this product does not contain SVHC (substances of very high concern) as listed in Annex XIV of the REACH regulation or on the candidate list published by the European Chemicals Agency in concentrations above 0.1 % (w/w).

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

Minimum substrate tensile strength: 1.0 N/mm² or as specified in the strengthening design.
Please also refer to the relevant Method Statement for further information.

SUBSTRATE PREPARATION

Concrete must be cleaned and prepared to achieve a laitance and contaminant free, open textured surface.
Please also refer to the relevant Method Statement for further information.

APPLICATION METHOD / TOOLS

The fabric can be cut with special scissors or a Stanley knife (razor knife / box-cutter knife). Never fold the fabric.
SikaWrap®-440 G BI is applied using the wet application process.
Please refer to the relevant Method Statement for details on the impregnating / laminating procedure.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product’s suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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