Biotex Flax/PP 2x2 Twill 400g/m^2 Fabric
Technical Data Sheet
March 2012

Introduction

Biotex Flax/PP fabrics are commingled textiles made from natural flax fibre and polypropylene (PP) fibre and are suitable for producing fibre-reinforced thermoplastic composite parts. The fabrics are moulded into rigid components by simply applying heat and pressure to melt the thermoplastic, wet-out the flax and consolidate. Suitable processes include press moulding, vacuum bagging and autoclave. The intimate blend of flax and thermoplastic ensures fast wet-out and low porosity, even with relatively low pressure processes.

Biotex natural reinforcements and intermediates provide the high performance and easy processing normally associated with glass fibre composites but with lower weight and environmental impact. They are suitable for semi-structural and decorative applications in sectors such as automotive, construction, marine, sports and consumer goods. Biotex uses a unique Twistless Technology to ensure a high degree of fibre alignment, impregnation and performance.

Specification

Specification for standard fabric (other constructions available on request):

Fabric specifications	
Weave style	2x2 twill
Warp yarn	Biotex 40% Flax/PP 250tex
Weft yarn	Biotex 40% Flax/PP 250tex
Warp count	7 ends/cm
Weft count	7 picks/cm
Weight	400g/m^2
Tolerance on weight	+/-5%
Width	1250mm
Tolerance on width	+/-2%

Fibre Properties

Typical average properties for flax fibres:

Flax fibre properties*	
Density	1.5g/cm^3
Diameter**	20 m
Tensile modulus	50GPa
Tensile strength	500MPa
Elongation to failure	2%

*Flax fibre is a natural product and a certain amount of variation should be expected.
**Flax fibre has a non-circular cross-section.

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Composite Properties

Property	Biotex 40% Flax/PP woven fabric*	Biotex 40% Flax/PP unidirectional fabric*	Test Method
Fibre content by vol	40%	40%	
Density	1.04g/cm^3	1.04g/cm^3	
Tensile modulus	8.1GPa	19.0GPa	ISO 527-4
Tensile strength	56.0MPa	128MPa	ISO 527-4
Tensile elongation	1.5%	1.3%	ISO 527-4
Flexural modulus	4.5GPa	14.0GPa	ISO 14125
Flexural strength	79.2MPa	124MPa	ISO 14125
Charpy impact	27.4kJ/m^2	-	ISO 179-1 U

*Data for laminates made from Biotex 40% Flax/PP fabrics by press moulding and tested at ambient temperature.

Processing

Biotex Flax/PP fabrics can be consolidated by heating to 180-200°C and applying a pressure of 1-50bar. Typical processes include press moulding, vacuum bagging and autoclave. Care should be taken to avoid excessive temperatures and prolonged times at temperature which could cause thermal degradation of the flax. A processing guide is available on request.

Packaging

Standard packaging details (other packaging options are possible on request):

Packaging details	
Roll width	1250mm
Roll length	50m
Net weight	25kg
Core	Cardboard tube
Wrapping	Polythene film

Orders for multiple rolls are typically packed on a standard wooden pallet and covered with stretch wrap.

Storage

Biotex Flax/PP should be stored in a cool dry place away from direct sunlight. Flax fibre can absorb moisture so drying may be required before use, especially if exposed to excessive humidity.

Safety

Flax fibre is a naturally occurring, non-hazardous material, but typical precautions should be taken when handling the material including using appropriate PPE and adequate ventilation. See MSDS for details.

Disclaimer

The information provided here is believed to be accurate but should be considered indicative only. It is the responsibility of the customer to check the suitability of the product for their specific application prior to use.