COMPOSITES EVOLUTION LTD

Foundation
- 2009, Spin-off from NetComposites Ltd

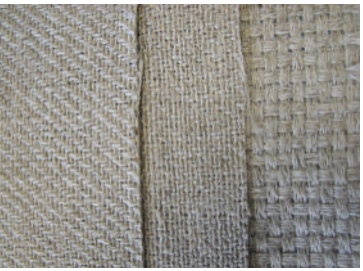
Turnover
- 20,000 € (2009)
- 100,000 € (2010)

Employees
- 5

Branches
- Large experience in spinning, weaving and finishing natural textiles
- Composite materials: processing and applications

Key materials
- Flax
- Flax / PLA
- Flax / PP

Key bio-based products
- Biotex high performance natural composites
- Yarns
- Fabrics – woven and non-crimp multiaxial
- Preconsolidated sheets



biotex
high-performance natural composites

Company

Composites Evolution is a supplier of innovative, sustainable materials including the Biotex brand of high-performance natural composite yarns, fabrics and sheets. Biotex is backed up by 130 years of experience in spinning, weaving and finishing natural textiles, coupled with decades of experience in composite materials, processing and applications. This gives Composites Evolution a unique capability in providing high-performance natural yarns, fabrics and preconsolidated sheets tailored to the requirements of composite products and processes.

Material

Biotex natural yarns, fabrics and preconsolidated sheets use a unique Twistless Technology to provide a combination of sustainability, performance and processability not previously seen in composites. For the first time, natural fibre composites can provide high levels of performance and the ease of processing normally associated with glass reinforced materials. There are 3 standard material options: Biotex Flax, Biotex Commingled Flax/PLA and Biotex Commingled Flax/PP.

Sustainability: Flax fibres are renewable and have a low environmental impact during processing. The matrix in commingled Biotex Flax/PLA is also derived from crops, giving a 100% renewable material that can also be recycled or composted at the end of its life.

Performance: Using Twistless Technology, the natural fibres in Biotex yarns are highly aligned to give up to 50% better fibre efficiency over conventional twisted yarns. The yarns are also easier to impregnate, giving improved fibre/matrix interaction and better performance.

Processing: The twistless fibres in Biotex yarns allow fast wet-out and impregnation. Biotex Flax/PP and Biotex Flax/PLA commingled materials include an intimate blend of the reinforcement fibre and matrix polymer for easy processing by vacuum consolidation or press moulding.

Typical Properties

Property	40vol% woven Flax / PLA	40vol% woven Flax / PP	33vol% woven Flax / UP	30vol% UD Flax / UP
Density (g/cm^3)	1.34	1.13	1.33	1.32
Tensile modulus (GPa)	13.2	8.1	7.2	18.8
Tensile strength (MPa)	102	56	68	174
Elongation (%)	1.6	1.5	2.5	1.5
Charpy impact (kJ/m^2)	33	27	28	

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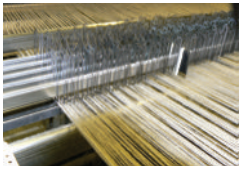
Applications: Biotex materials are suitable for semi-structural and decorative applications in a wide range of sectors including automotive, building & construction, marine, sports & leisure and consumer goods.



Products

Yarns: Biotex yarns are designed specifically for composites and are available in a range of linear densities. They are suitable for processes including filament winding and pultrusion.

- Yarn linear density – 250tex (standard), 125–2000tex (on request)

Fabrics: Biotex fabrics are available in a range of weave styles and fabric weights. They are suitable for processes including hand lay-up, vacuum infusion, RTM and thermoplastic composite processes.

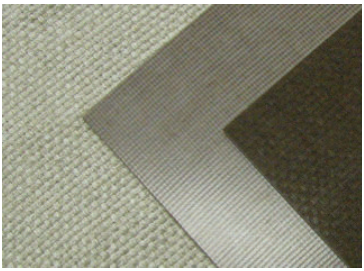
- Woven fabrics – 2x2 twill, 3H satin, 4x4 hopsack (standard), others (on request)
- Non-crimp fabrics – unidirectional, biaxial (standard), others (on request)
- Fabric weight – 400–550gsm (standard), 250–800gsm (on request)
- Fabric width – 1.25m (standard), up to 3m (on request)

Preconsolidated sheets: Biotex Flax/PLA and Flax/PP can also be supplied as preconsolidated sheets in a range of thicknesses. They can be formed to shape by heating and stamp forming in matched press tools.

- Sheet thickness – 0.4–2.8mm (standard), others (on request)

Composition

- Flax
- Flax/PLA – 40% flax by volume (standard), others (on request)
- Flax/PP – 30% & 40% flax by volume (standard), others (on request)



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