Bcomp® | ampliTex™

Technical Data Sheet
ampliTex™ Ref. 5008

ampliTex™

Art. No. 5008

Bi-axial 363 gsm



ampliTex™ 5008 is a non-crimp biaxial flax fabric with fibres oriented at +/-45°, suitable for manufacturing of high performance composite products with low environmental impact.

Fabric architecture

Fibre type : Flax (EU)

Construction : +/-45° Ply

Yarn Tex : 106 tex

Fabric weight : 2 plies 177gsm each

Dimensions

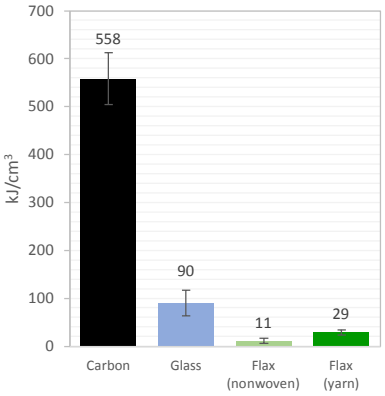
Standard width : 1270

Standard roll length : 50 m

Ecological Aspects

Grown in France and Belgium, the flax used at Bcomp is a regional resource.
Production of flax has a negative global warming indicator because of the CO2 sequestration by photosynthesis.
Find more details on bcomp.ch .

Embodied volumetric energy



Technical Performance

The flax fibres used in ampliTex™ fabrics have a modulus of about 60 GPa and a tensile strength of 650 MPa, which makes them a performing technical fibre.
Comparing the specific stiffness of ampliTex™ and glass fibres shows that the tensile performance of ampliTex™ fabrics is about 50% better.
Further advantages are vibration damping properties which are much greater compared to glass or carbon fibre, and less fragile fracture behavior than carbon fibre.

Tensile Properties	
Young's Modulus // to fibres (GPa)	32.1*
Young's Modulus ⊥ to fibres (GPa)	4.12*
Strength // to fibres (MPa)	394*
Strength ⊥ to fibres (MPa)	20.9*
Strain to failure // to fibres (%)	1.72*
Strain to failure ⊥ to fibres (%)	0.54*

Flexural Properties	
Modulus // to fibres (GPa)	32.6*
Modulus ⊥ to fibres (GPa)	4.6*
Strength // to fibres (MPa)	377*
Strength ⊥ to fibres (MPa)	26.4*
Yield strength, Rp0.2 // (MPa)	348*

Ply Properties	
Density dry fibers (kg/m^3)	1470
Ply thickness (mm)	0.47

* This fabric consists of two layers of unidirectional yarns with a surface weight of 177gsm with the specified properties. The mechanical Properties where evaluated on specimens manufactured from 8 layers of ampliTex™ #5025 in vacuum infusion with epoxy, cured under pressure of 6 bar.Volume faction of fibers of 53%.

Processing Guidelines

- Excellent compatibility with epoxy and polyester
- Near-zero CTE, hence full processing compatibility with carbon fibres
- Compatible with infusion-based processes (vacuum infusion, RTM), wet layup, bladder inflation moulding (BIM) and compression moulding
- Flax fibers always contain some humidity under ambient conditions. Some resins (especially polyesters) are sensitive to moisture and may poorly polymerize or create bubbles. In this case we recommend drying the fabrics prior use (110°C for 15 minutes)
- Fibre weight fraction of 60% can be achieved with process pressure > 5 bars. However, the fibres absorb a lot of resin when hand-laminating and it tends to look “dry” (unless too much resin is used) before pressure is applied. We recommend controlling the amount of resin used for laminating and impregnating with 50 to 60% resin in weight. Excess resin will be squeezed out while pressing.

All data given is based on representative samples of the materials in question. Since the method and circumstances under which these materials are processed and tested are key to their performance, and Bcomp has no assurance of how its customers will use the material, the company cannot guarantee these properties.