

ampliTex™

Art. No. 5057

Fabric specifications

| | |
|----------------|----------------------------|
| Fibres | Flax (EU) |
| Yarn | 300 tex no twist |
| Weave | UD |
| Width | 1000 mm ± 15 mm |
| Areal weight * | 150 g/m ² ± 5 % |
| Roll length | 50 m |

Fibre properties

| | |
|---------------------|-------------|
| Fibre density | 1.47 ± 0.02 |
| Apparent modulus | 62 ± 1 GPa |
| Elongation at break | 1.3 - 1.4 % |
| Water content * | 5 - 6 % |

* Valid at ambient conditions: 22 °C, 50 % RH

Ply properties

| | | |
|-----------------------|-------------|---------|
| Theoretical thickness | | |
| | at Vf = 35% | 0.29 mm |
| | at Vf = 50% | 0.20 mm |

Mechanical properties of laminated plies depending on processing method and matrix system are available upon request.



ampliTex™ is a range of natural fibre reinforcement for composites, engineered to offer very high performance at low weight, with minimal impact on the environment.

Key performance advantages

- Very high specific stiffness and strength
- Architecture optimized for composite processing and performance
- Reliable and highly consistent performance across batches
- Viscoelastic behaviour providing very efficient vibration damping
- Excellent inherent compatibility with thermosets via covalent bonding
- Very low CTE, hence high thermoelastic compatibility with carbon fibres
- Highly radio-transparent across the entire RF spectrum (1 - 40 GHz) even in thick laminates
- Long fatigue life in cyclic loading
- Compatible with vacuum infusion, wet layupm RTM, BIM, autoclave processes and compression moulding
- CO₂ sequestrator: the emissions related to process energy from the flax seed to the ampliTex™ roll are offset by the sequestration at growth via photosynthesis (1.65 kg of CO₂ sequestered / kg fibre)
- ampliTex™ coupled with Bcomp powerRibs™ patented surface reinforcement can produce a full natural fibre laminate that matches the flexural rigidity of a monolithic CFRP laminate of the same weight.

Processing guidelines

ampliTex™ flax fibres inherently develop a strong adhesion with common thermosets (epoxy, polyester, vinyl ester, PFA, among others) without the need for a sizing agent.

Flax fibres naturally contain some water in ambient conditions, which is generally not an issue. However, it may have a range of effects on composite curing depending on various factors such as resin chemistry, resin mass content, processing method and curing temperature, to be verified on a per-case basis. In case of moisture sensitivity, we recommend actively drying the fibres prior to lamination : 1 h at 60 °C, 30' at 85 °C, or 15' at 110 °C.

High fibre fractions can be achieved with pressurised or closed mould processes. However, the resin uptake of natural fibres is higher than that of glass and carbon fibres when hand-laminating, and the fabric will tend to still look dry before compaction, even with the right resin content. For out-of-autoclave processes, we recommend controlling the laminate resin content to about 55 - 60 % by weight.

Please reach out to us at any time for support and expertise on composite design, processing methods and best practices.

Disclaimer: As with any type of composite reinforcement, the manufacturing of parts with the desired properties using ampliTex™ is dependent on the proper judgment and methods of the operator. The guidelines proposed herein are for information purposes only and do not constitute an implied or express guarantee of successful results.

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