Press release - 15/05/2019

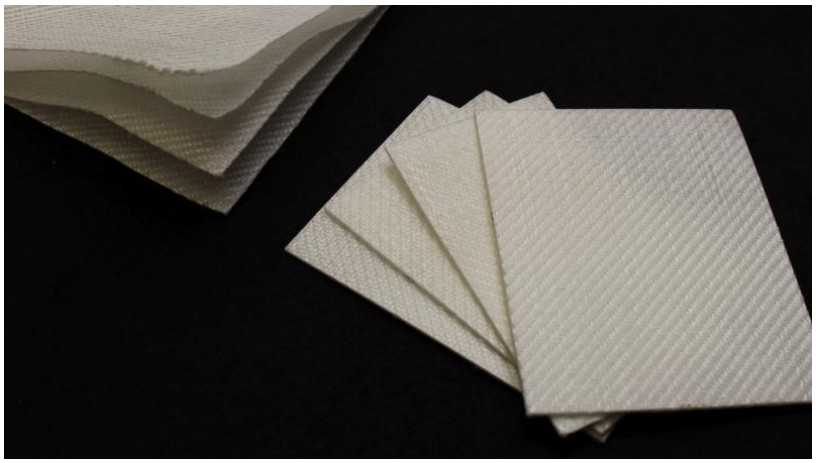
Centexbel, Technologiepark 70 - 9052 Zwijnaarde

Centexbel's concept for a biobased self-reinforced composite material also receives the prestigious Techtextil Innovation Award in the category "Sustainable Solution"

techtextil
innovationaward.2019
sustainable solution

Project partners Guy Buyle - Centexbel, Hans Knudsen - Comfil (Denmark) en Kevin Moser - Fraunhofer Institut für Chemische Technologie ICT (Germany) present the TechtTextil Innovation Award winning BIO4SELF concept at the TechTextil booth of Centexbel (hall 4.2 - booth E60)

After being rewarded with the International JEC Innovation Award for Sustainability on March 13, 2019, the BIO4SELF concept of a self-reinforced PLA composite material, developed in the European H2020 project, coordinated by Centexbel, now receives the TechTextil Innovation Award for Sustainability at the TechTextil fair in Frankfurt am Main. Worldwide, the TechTexil innovation Awards are recognized as the most prestigious award for innovating textiles.

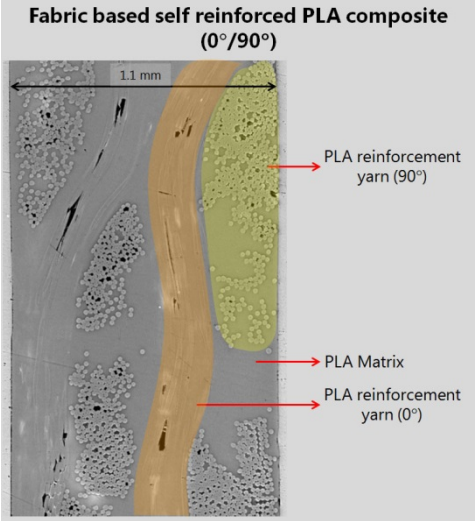


Biobased composite board made from 2 PLA types with different melting temperatures.

BIO4SELF has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 685614

BIO4SELF has developed biobased and easy-to-recycle self-reinforced composites based on PLA fibres with an inherent high stiffness. As a result, PLA is being upgraded to a material suited for more technical and demanding final applications including automotive and household electronics, and offers possibilities for lots of other applications (sports, transportation, and medical appliances).

The principle



Two different PLA grades are required to produce self-reinforced polymer composites or SRPCs: a low melting temperature PLA grade to form the matrix and an ultra-high stiffness and high melting temperature PLA grade to form the reinforcing fibres.
Bio4self innovations overcome several challenges related to the production of PLA SRPC: formulation of a moisture/humidity-resistant PLA grade; melt extrusion of ultra-high stiffness PLA reinforcement fibres; development of (consolidation and thermoforming) manufacturing procedures to produce the highest performance SRPC material; and industrial scale-up of production.

The very long expertise of Centexbel in PLA extrusion that was further refined by researcher Lien Van der Schueren of the team "Functional Thermoplastic Textiles", during the BIO4SELF project proved essential to this success.

Main advantages

- **Biobased:** composites made from two PLA grades with different melting temperatures
- **Performance:** high mechanical strength, temperature and hydrolytic stability
- **Cost:** far below carbon fibre composites, comparable to or even below SR-PP
- **Upscalable:** using commercially-available materials and industrial equipment
- **EoL:** re-usable, recyclable or industrially compostable as the composite is made of PLA

As a result, the PLA SRPC developed in Bio4self matches the requirements of current commercial self-reinforced polypropylene (PP) composites. Self-reinforced PLA composites made of 0/90 fabric have a stiffness of 4 GPa, which is comparable to the stiffness achieved by self-reinforced PP, but the PLA SRPC has the advantage of using renewable materials with a better end-of-life perspective.

More information and contacts

www.bio4self.eu - www.centexbel.be/en/projects/bio4self

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