Interview

Topic	BioBase – Bio-based alternatives from available resources for textile applications with competitive costs and properties.
Interviewee	Fabian Langensiepen (AMIBM), Amrei Becker (ITA RWTH)
Moderator	Sea-Hyun Lee (BIOTEXFUTURE PMO)

Introduction

Fibers and textiles are used in the four key textile industries of technical textiles, sports textiles, automotive, and interiors. In 2019, global fiber production amounted to more than 120 million tons. Of these, 73 % belong to man-made fibers, which are produced based on natural or synthetic polymers (plastics). A central problem in the production of man-made fibers based on synthetic polymers is the dependence on fossil raw materials, which are subject to various ecological and, in the long term, due to their finiteness, also economic and political risks. Polymers based on renewable raw materials can be an alternative.

What lies behind BioBase, that aims to establish bio-based polymers in the textile industry and demonstrate their full potential will tell us Amrei Becker (ITA RWTH) and Fabian Langensiepen (AMIBM) in today's interview.

Q&A

Question: What is currently going on in BioBase?

Fabian & Amrei: In the BioBase project, the first sample fabrics prototypes made of conventional, fossil-based polymers have been reproduced. These will be used as project-internal benchmark products in the later course of the project and compared with the prototypes made of bio-based polymers. Furthermore, the first biobased polymers have been selected to produce bio-based prototypes soon.

Question: **What is behind the Project BioBase and how was this project initiated?**

Fabian & Amrei: The project aims to demonstrate through 4 prototypes in different areas that with the currently commercially available biopolymers it is possible to replace conventional polymers in an equivalent way.

Question: How do you identify suitable off-the-shelf biobased polymers?

Fabian & Amrei: In the project, a database of bio-based polymers was compiled and the first polymers with a high-potential of sufficient properties for melt spinning have been selected. In the next step, these will be spun out as fibers and processed into a prototype. The yarns, fabrics, and/ or prototypes will then be tested with standard methods in the respective company and to see if they meet the requirements. If not, the polymer is optimized or another one is selected.

Question: What kind of polymers have you already identified for possible products?

Fabian & Amrei: At the moment, our focus is on bio-based polyesters and polyamides.

Question: Currently only 1% of textile waste is recycled. What kind of remedy offer bio-based solutions?

Fabian & Amrei: Bio-based solutions do not necessarily offer a remedy to the challenges of recycling. A minority of biopolymers are compostable or biodegradable and can be used in specific applications such as agricultural textiles. This offers a different end-of-life scenario. It is important to notice that most biobased polymers are not biodegradable due to their chemical structure. For real textile-to-textile recycling, recycling processes have to be refined for fossil and biobased polymers.

Question: BioBase has a project period of 3 years. What have you achieved so far and what are your next goals for the remaining time?

Fabian & Amrei: The BioBase project was launched on 01.12.20. In the first six months of the project, we were able to get a good overview of the available biopolymers. Furthermore, the first prototypes have been defined and are in production.