

Project title: "ElasKosTex" - Development of highly elastic, cost-effective bicomponent filament yarns for use in medical and apparel textiles

Partner: FBW GmbH, Niederzier
Hohgardt GmbH & Co.KG, Sprockhövel
Institut für Textiltechnik der RWTH Aachen University, Aachen

Duration: 04/2020- 03/2022

Funding Agency: "Zentrales Innovationsprogramm Mittelstand – ZIM" of the BMWi ("Central Innovation Programme for small and medium-sized enterprises (SMEs)" of the German Federal Ministry for Economic Affairs and Energy)

Univ.-Prof.
Prof. h.c. (MGU)
Dr.-Ing. Dipl.-Wirt. Ing.
Thomas Gries
Director

Jan Thiel, M.Sc.
Researcher

Ref.: JT
21.06.2020

Mission Statement

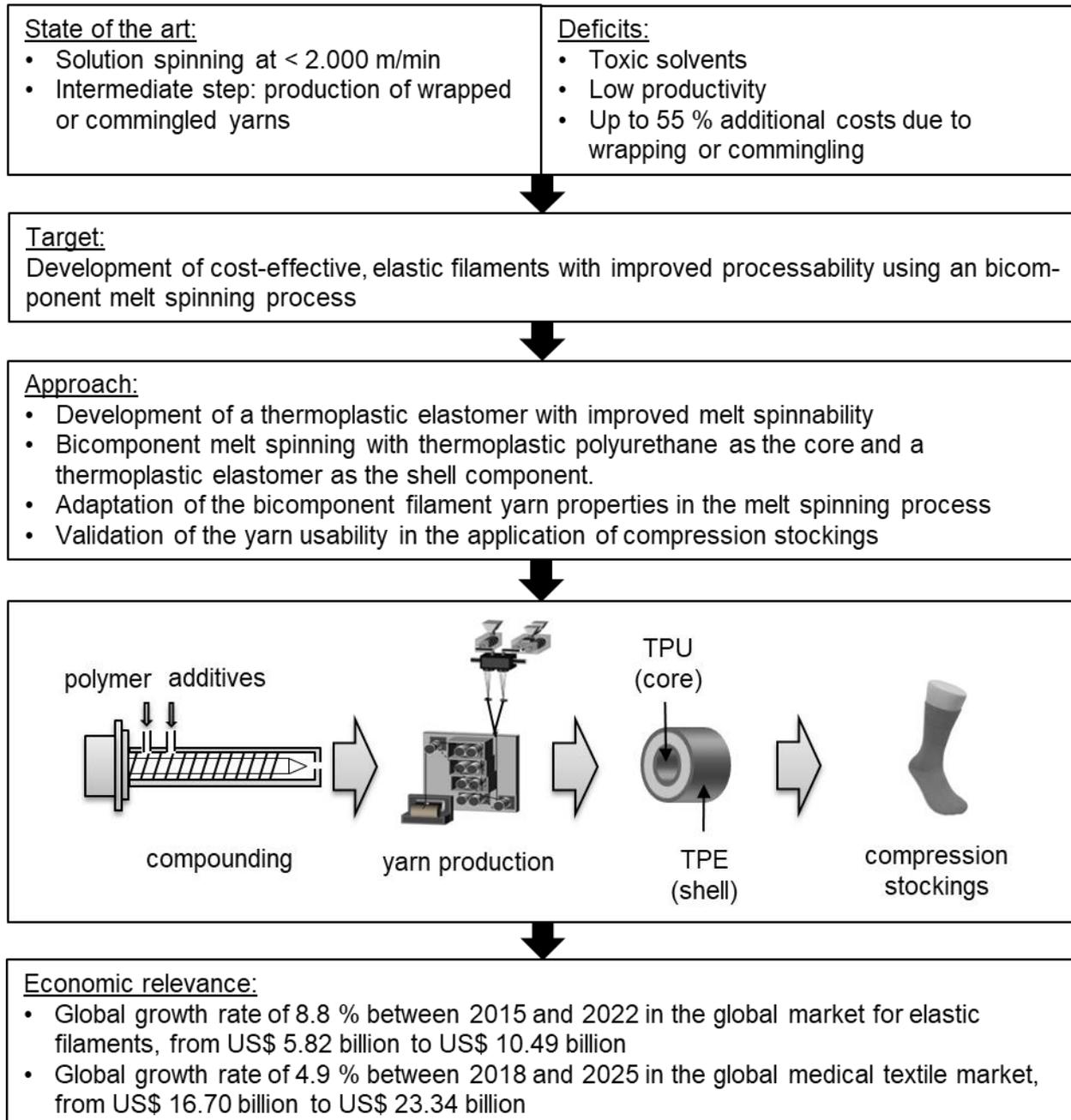
Currently, elastic yarns are mainly produced by dry spinning. Toxic solvents are often used, for example acetone, dimethylformamide (DMF) or dimethylacetamide (DMAC). Avoiding the use of these solvents is particularly advantageous for textiles which are in contact with human skin, such as clothing or medical textiles. Although the majority of these solvents can be recovered by evaporation, residues remain in the spun and processed yarns, which can be released in long-term use. High surface stickiness also limits further processing, as winding and unwinding are massively disturbed.

Depending on the polymer, melt spinning processes achieve up to 7,000 m/min while the maximum speed of current dry spinning processes is 2,000 m/min. Therefore, the consortium pursues three objectives in the "ElasKosTex" project:

- Development of a melt spinnable thermoplastic elastomer compound (TPE)
- Development of a melt spinning process for elastic multifilaments
- Development of cost-effective elastic tapes for medical and hygiene textiles based on new yarn materials

Approach

In order to achieve these goals, the approach of bicomponent melt spinning is pursued. A TPU in the core ensures sufficient elasticity of the filaments, while a shell of TPE reduces the tackiness and thus facilitates further processing. The yarn usability is validated in the application of compression stockings.



Acknowledgement

We would like to thank the German Federal Ministry for Economic Affairs and Energy for funding the research project within the framework of the Central

Innovation Programme for small and medium-sized enterprises (funding code: ZF4558965EB9).

Supported by:



Federal Ministry
for Economic Affairs
and Energy



on the basis of a decision
by the German Bundestag

Contact

Jan Thiel, M.Sc
Institut für Textiltechnik
Otto-Blumenthal-Straße 1
52074 Aachen
E-Mail: Jan.Thiel@ita.rwth-aachen.de
Tel.: +49 241 80 49109