Sächsisches Textilforschungsinstitut e.V.

Affiliated institute of the University of Technology Chemnitz

Managing Director: Dr. Heike Illing-Günther

Annaberger Straße 240 | 09125 Chemnitz | Germany | Phone: +49 371 5274-0 | Email: stfi@stfi.de | www.stfi.de

silkWool – Recycled fibroin for the finishing of wool yarns

Problem / Motivation

- Keep fibres from renewable raw materials in the material cycle more effectively and for longer,
- Upgrade coarse, regional wool grades in a targeted manner and use them as a resource rather than disposing of them,
- Convert silk proteins from processed, used silk fabrics into a hydrogenated solution and use them as a finish for wool fibres,
- Improve the tactile properties of regional wool yarns by anchoring silk fibroin to wool fibres, thereby enabling the use of wool in the clothing industry.

Solution

- Development of a skin-friendly, fibroin-based textile additive through the extraction of silk proteins from waste silk fabrics using environmentally friendly solvents
- Process development for bonding recycled fibroin to wool through application tests on yarns using a segmented slot die and, as an example, on flat fabrics using reverse roll coating
- Evaluation and comparison of the yarn properties of treated and untreated yarns
- Development of finished products made from woven and knitted fabrics as application examples

Project Partner

Burg Giebichenstein University of Art and Design Halle, Department of Textile Design

Project Launch

12/2025

ReFib: Recycling fibroin for textile finishing (Photo: Kim Cordes)

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Contact: Dr.-Ing. Sarah Lysann Zedler Phone: +49 371 5274-266 Email: sarah.lysann.zedler@stfi.de
Dipl.-Phys. Nadine Liebig Phone: +49 371 5274-271 Email: nadine.liebig@stfi.de

www.stfi.de

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