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

Flex & Tear – Flexible tearing elements for fibre-friendly opening of textile semi-finished products

Problem / Motivation

- Currently, only approx. 15 % of the collected textiles from the consumer sector are so-called cascade recycled, and only 1 % of the materials are recycled and kept in circulation
- State of the art technology: classic tearing machines, consisting of one or more tambours, several pinned lags and high-strength tearing needles for opening the textile
- The Industry must be enabled to use raw materials economically and operate sustainably in material cycles through expansion and modernisation in the long term
- The aim of the research project is the development of innovative, flexible tearing elements that are optimised for fibre-friendly textile opening

Solution

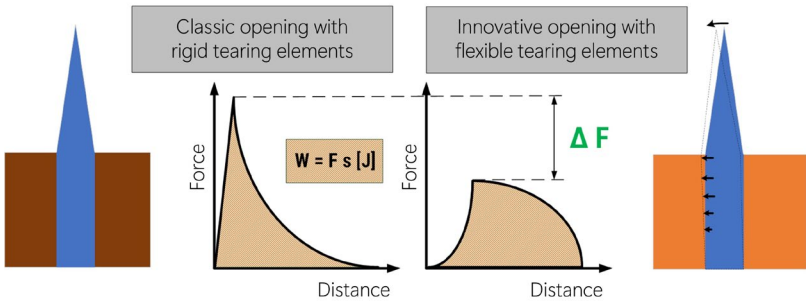
- Textiles made from high-quality carbon and aramid fibres will be considered as examples
- New tearing elements will be developed which can be used as a stand-alone solution or in combination with state-of-the-art technology, depending on the fibre to be processed
- Using innovative, flexible tearing elements, the high impact force on the textile structure should be minimised and so, the shortening of the fibres should be reduced
- Both the tearing elements themselves and a flexible fibre base fixation will be considered

Project Launch

01/2025

Project Partner

currently none,
open for enquiries



Force distance graph: classic and innovative tearing process in comparison

INNO-KOM

Supported by:

Federal Ministry for Economic Affairs and Climate Action

on the basis of a decision by the German Bundestag

Acknowledgement

We would like to thank the Federal Ministry for Economic Affairs and Climate Action for funding the research project Flex & Tear (Reg.-Nr. 49VF240024) within the funding programme "FuE-Förderung gemeinnütziger externer Industrieforschungseinrichtungen – Innovationskompetenz (INNO-KOM) – Vorlaufforschung (VF)".

Contact: Dipl.-Ing. Michael Eichhorst, Phone: +49 371 5274-227, Email: michael.eichhorst@stfi.de
Johannes Leis, M. Sc., Phone: +49 371 5274-254, Email: johannes.leis@stfi.de