INTERNSHIP OR GRADUATION ASSIGNMENT – Sustainable & Functional Textiles (SFT)

Measuring Recycled Fibres by Fibre Length Distribution

Background

Sustainability and the circular economy are becoming increasingly important in the textile industry. Many companies require their suppliers to include a certain percentage of recycled fibres in garments. However, verifying these claims is currently not possible. Virgin fibres are cheaper, and suppliers may overstate recycled content (greenwashing).
Our research group *Sustainable & Functional Textiles* has developed a set of three analytical technologies which combined have the potential to determine recycled cotton content. In the recently started FiberFact project, carried out together with a cross-border consortium, these methods will be further developed and expanded to include synthetic and regenerated fibres.

One of the technologies for measuring *mechanically* recycled cotton is 'Fibre Length Distribution'. In mechanical recycling, fabrics are cut and torn into smaller pieces, yarns and ultimately into fibres, resulting in shorter fibre lengths. This reduction in length can be used to distinguish recycled fibres from virgin fibres and to estimate the proportion of recycled fibres present.

Objective

Your internship goal is to further develop and determine the accuracy of the Fibre Length Distribution method. From the earlier work, a preliminary operating procedure is available as a starting point.

Tasks

- Measure the fibre length distribution of various mechanically recycled and virgin fibres.
- Measure the fibre length distribution of fibres removed from yarns and fabrics.
- Analyse the results and assess the accuracy of the method.
- Investigate the impact of various parameters like sample size.
- Use your findings to improve the existing method.
- Support, by sharing your results, other researchers and partners that are working in the project on
    - automated data-analysis using AI
    - improving sample preparation
    - improving the measurement equipment

This is an exciting opportunity to work in a cross-border project with partners from both applied universities as well as from the industry! You will work in Saxion's Circular Textile Lab (CTL).

Student Profile

- Relevant background (textiles, forensic science, …) with interest in sustainability and textile analysis.
- Precise, independent, and methodical working style.
- Good planning and communication skills.

Practical Information

Location: Saxion Circular Textile Lab
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Project FiberFact:

- SFT online magazine, page 60.
- www. Fiberfact.net
- LinkedIn