THE PROJECT PARTNERS

The project is being carried out in collaboration with the following partners:

Universität Bremen

Center for Environmental Research and Sustainable Technology (UFT)

The development of a process for the selective separation of materials using electric fields.

Faserinstitut Bremen e.V. (FIBRE)

Textiles are converted into powdery mixtures of particles by cryogenic grinding.

Bremen Cotton Exchange (BBB)

Interdisciplinary expertise in all aspects of cotton throughout the entire supply chain.

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BAB Die Förderbank

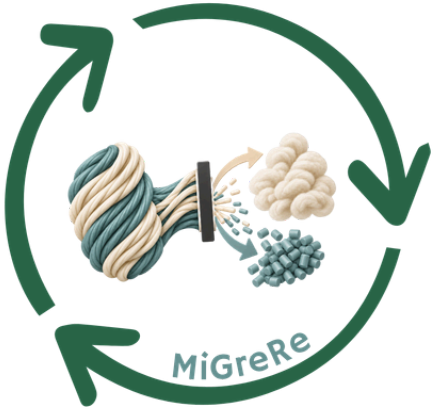
Die Senatorin für Umwelt, Klima und Wissenschaft

Freie Hansestadt Bremen

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MiGreRe

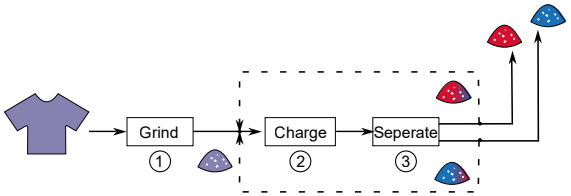
Sustainable recycling of blended yarns and blended fabrics

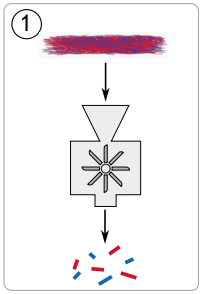


Universität Bremen

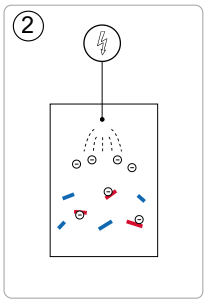
FIBRE

THE PROCEDURE

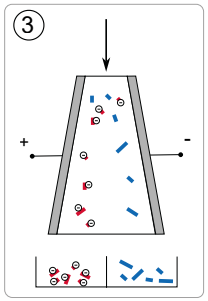




The first step is to grind the textiles using cryogenic methods.



The particles produced in this process are then electrostatically charged.



In the final step, they are separated from each other by an electric field.

Schematic diagram of the planned process
© Laura Weirauch

THE PROJECT

It is estimated that less than one per cent[1] of all textiles worldwide are recycled into new textiles. Clothing made from blended textiles, such as **cotton-polyester blends**, poses a significant challenge to the recycling process.

As the different fibres in blended yarns are tightly intertwined, it is impossible to carry out **material-specific separation** using methods available today. Consequently, these yarns are often recycled into lower-grade products or incinerated.

The **MiGreRe** project is developing an innovative recycling process in which textiles are first ground into particles at extremely low temperatures (cryogenically), then electrostatically charged, and finally separated in an electric field.

The aim is to extract single-variety resources and reuse them to manufacture new, high-quality products such as viscose, lyocell and cellulose acetate, thereby **closing the material cycle**.

[1] Ellen MacArthur Foundation (2017)

THE OBJECTIVE

- Develop a new textile recycling process.
- Recover raw materials sorting them by type.
- Close the material cycle.