

“RESYNTEX” - A new circular economy concept for textiles and chemicals

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RESYNTEX aims to create a new circular economy concept for the textile and chemical industries. Through industrial symbiosis, the project aims to produce secondary raw materials from textile waste. Create a strategic design for a complete value chain from textile waste collection through to the generation of new feedstock for chemicals and textiles; Improve post-consumer collection approaches and increase public awareness of and social involvement with the issue of textile waste; enable traceability of waste processing using data aggregation; the collected data will evaluate the performance of the new value chains by means of a life cycle assessment (LCA) and life cycle costing (LCC), compared to existing end-of-life scenarios; develop innovative business models for the chemical and textile industries; demonstrate a complete reprocessing line for basic textile components, including liquid and solid waste treatment. Currently, many of the materials contained in products are discarded as waste after use. The textile industry is no exception. Textile waste has increased steadily and only a fraction of it is collected and recycled. Much of the waste is landfilled or incinerated with a high environmental impact and at great cost. The valuable resources held within the waste are lost. Both citizens and industry stand to benefit from RESYNTEX's ambitious project goals. While research focuses on European countries, the project offers a global benefit and will help to inform governing bodies on how to move towards a more circular economy for textiles and chemicals. A new demonstration process will be presented, based on a synergistic chemical and biotechnological cascading separation/transformation approach of textile basic components (proteins, cellulose, polyamide and polyester) from textile blends as basic feedstock materials for chemical & textile industries which is under development. Liquid and solid waste treatment and valorisation is foreseen to close the loop. The results will cover PET and PA transformation and their decolourization prior chemical degradation.