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REGATEX Project: Scaling up a chemical recycling process for textile waste

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ShareTex and ENCE have started a collaborative project for the chemical recycling of textile waste to encourage the transformation of the sector towards a sustainable model with special focus on reducing the waste generation and increasing recycling rates. This project aims to build, start up and operate a pilot plant for the chemical recycling of textile waste, to scale up a novel process, which provides relevant advantages with respect to current and under development processes.

Mechanical recycling of textile waste is widely established in the market, but only offers solutions for certain types of products such as mono-component materials (mainly pre-consumer textile waste, 100% cotton). Therefore, ShareTex has partnered with ENCE to scale up an innovative technology developed for the chemical recycling of multi-component materials (mainly post-consumer textile waste, poly cotton), providing an outlet for other types of waste through the hydrated ionic salts process developed by ShareTex. This project is a first step in scaling up the chemical textile recycling process (TRL from 3-4 to 5-6), which has been identified as one of the main barriers and challenges to overcome to meet the environmental goals in this sector. The scope of this challenge is perfectly highlighted by the fact that there is currently no commercial chemical textile recycling plant in the world.

This innovative technology stands out for its versatility in terms of both the raw materials used and the product segment obtained. The process allows the extraction of cellulose from different types of textile products (mono or multicomponent), so it does not depend on a particular type of fiber, as well as offering the possibility of modifying the properties of the cellulose in the final product, tailoring it to the needs of customers. This flexibility allows cellulose fibers to be reintroduced with the highest possible added value, either as new textile fibers or for other applications. Furthermore, the synthetic fibers present in the raw material are obtained in a controlled and purified way, making it possible to establish synergies with collectors of this kind of materials.