

# Searching for innovative opportunities for the use of textile waste



With respect to the arrival of the circular economy, limited availability and price growth of the classic fiber as well as to the expected restrictive measures to reduce volume of unprocessed waste, the need for effective utilization of textile waste is an inevitable challenge to find solutions.

While the classical technologies for textile waste processing are well-available (especially mechanical - tearing and cutting), there is often lack of the technological solution for processing and further utilization of waste from the production of technical textiles (fibers, edge cuttings, fabrics, defective products, etc.); the reason is their nature (coatings, laminates, composites, etc.). Due to the significant position of the production of technical textiles in Central Europe, the solution of recycling of this type of textile waste represents an innovative opportunity for innovations.

In our conditions, following research on industrial partners and with regard to existing market volumes, the following areas of search for solutions have been proposed for further exploration of waste reduction opportunities:

1. **Possibility of processing of waste from the production of coated technical textiles**, especially edge cuttings. Currently, it is mostly fabrics with cellulose fibers, PES (including mixtures) with surface coating of cross-linked polymeric (usually acrylic, SBR or PVAC) coatings, or starch-containing coatings. This waste is also a subject of attention in other EU countries, together with carpet wastes.
2. In accordance with the large-scale use of **textiles for medical (hotel, recreational) facilities**, the use of these relatively well-defined materials **after their physical lifetime for recycling** is discussed with respect to the effective addressing of the steps towards the circular economy. For the pilot evaluation of this direction, it is necessary to create mutual coordination between producers (textiles and protective clothing or bedding), user facilities and, increasingly, industrial laundries with the rental of these products. This waste category was also included into the RegioTEX European activity program as a massive group of textiles with a relatively easy to define material composition (the majority share of cotton is accompanied by a growing volume of the CO / PES blended composite structures with prolonged service life). Despite the increased focus on functional and multifunctional effects, the composition of these wastes arising within the described closed cycle is relatively well-predictable. The project concerns textiles intended for repeated use, not disposable materials usually based on NT. Besides the ecological effect and the step towards the sustainability of the material resources, the systemic cooperation within the chain can bring also additional economic effects; instead of the upcoming landfill and liquidation charges, create a prerequisite for partial compensation of acquisition costs through the recovery of waste in the circular economy.
3. In addition to the massive rise in bio-economics, a significant expansion of **alternative fiber resources** is also expected. It will not only be new materials based

on building blocks from emerging industrial biotechnologies. With respect to the development of alternative processes for the processing of wood biomass (production of regenerated cellulose fibers) and application of enzyme biocatalysis, the recycling of cellulosic - ie textile - waste and their (even partial) reuse in the production of new types of plastics and fibers are subsequently getting into game. New possibilities of the complete - no-waste - biomass utilization (for example, evaluation of the waste stem of oil flax for fiber extraction) are being introduced.

These new challenges need to be addressed in a timely manner in the solution of projects - in the Czech Republic at the level of the collective research CLUTEX and of the involvement of ČTPT. These upcoming opportunities will play an important role in provision of the sustainable resources for textile production. **Therefore, active contributions and demands for related solutions and especially the evaluation of their viability in innovative business programs are welcome,**

As part of the ENTeR project, we also intend **in 2019 to organize together with tne ČTPT several meetings and seminars on textile processing and utilization, to allow exchange of information and establishment of contacts among stakeholders;** we will inform you about them in time. This collaboration and active engagement of the participants will allow better preparation of the whole sector for the emergence of technical and legislative tools of the circular economy and will help to find new ways to the more efficient waste management.

More about the project on the web [www.interreg-central.eu/enter](http://www.interreg-central.eu/enter)



### *ENTeR – Expert Network on Textile Recycling*

*The transnational project ENTeR funded by Interreg CENTRAL EUROPE programme focuses on waste reduction in textile industry and it's use. Within the project will be established the virtual centre (the on-line platform) which will accelerate cooperation between the involved textile territories, promoting a joint offer of innovative services by the main local research centres and business associations focused to processing and recovery of textile waste. The aim is to demonstrate the benefit of an operational collaborative model among research and business partners, based on an online tool and shared skills focused on waste eco design and resource efficiency.*