



# Enzymatic treatment of tumble dryer residues

The waste management deals with all types of waste in order to reduce adverse effect on energy consumption, human health and environment. Daily life actions as using tumble dryer can worsen the production of household waste. Considering the textile residues mix, different enzymatic processes can be applied for the recovery of still valuable molecules and therefore develop a circular economy solution.

## BACKGROUND

In the last decades the production of textiles, especially for clothing, is exponentially increasing mostly due to globalization. In Europe, 80.000 tons of textile waste are generated per year and their end-life is primarily landfilling or incineration. There are actions in our daily life such as the use of a simple tumble dryer that can create residue waste materials. These residues mostly still contain valuable molecules that can be recycled. Therefore, considering the material composition, an enzyme-based strategy can be developed for the recovery of valuable building blocks from a tumble dryer mix waste generating a circular economy solution.

## TECHNOLOGY

**1)** acib develops advanced enzymatic processes for the degradation in mild conditions of various synthetic and bio-based polymers into their building blocks. With different enzymes, due to their specificity, it is possible to fully degrade composite materials consisting of e.g. PET (polyethylene terephthalate), cellulose, etc. It is even possible to identify novel enzymes for specific industrial applications.

**2)** Furthermore, in our labs, sustainable processes have been developed for the re-use of recovered valuable molecules, suitable then for new industrial applications. These activities make use of the latest biotechnology tools and sophisticated analytical equipment for the analysis of the different building blocks as well as facilities for scale-up of e.g. various fermentation processes.

## EXPERTS

Dr. Sara Vecchiato  
Prof. Dr. Georg Gübitz  
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## AVAILABLE FOR

- Funding
- Investment
- Joint Research Project
- Contract Research

## DEVELOPMENT STATUS

TRL 2-3

## KEYWORDS

- Enzymatic degradation
- Waste material
- Recycle
- Valuable components
- (Bio)polymers
- Environment

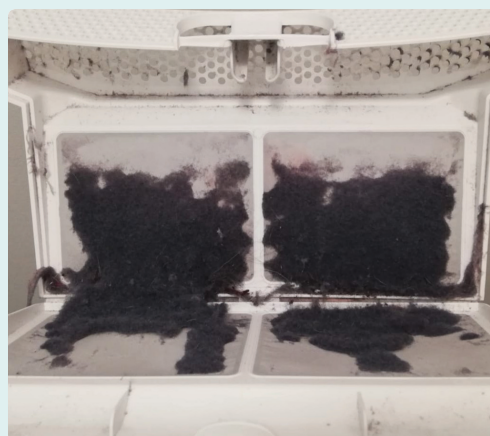


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