



In Germany, only 26 per cent of used textiles are recycled, mostly into cleaning rags and insulation material. The vast majority is exported to other countries or incinerated. High-quality recycling of used fibres into new textile fibres is still in its infancy. This also applies to Germany. So far, the majority of recycled used textiles have been made into cleaning cloths, fleece fabrics and insulation materials. Recycled textile fibres that replace fibres made from cotton or petroleum in new textiles are rare.



In the shredding plant, clothing is torn apart, cut and later shredded. - Photo: NABU/Verena Bax

A variety of approaches are needed to reduce the significant environmental impacts of textile production. The priorities are to extend the useful life of textiles and to change the way we consume them. However, the recycling of used textiles that can no longer be reused must also be expanded in terms of both quantity and quality. The Oeko-Institut has therefore been commissioned by NABU to analyse the obstacles to and potential for textile recycling in Germany and In addition to clothing, textiles include home textiles such as bed linen and curtains, as well as technical textiles used, for example, in car manufacturing or in medicine.

High-quality textile recycling alone is not financially viable; rather, a legal framework is needed to promote it in the future. 'We don't need more cleaning rags,' says Anna Hanisch, NABU expert on circular economy, 'Our study shows that there is great potential for higher-quality recycling so that old textiles can be turned into new textiles again. To achieve this, fibre-to-fibre recycling must be expanded. The prerequisite for this is au-

automatic sorting by fibre composition. This is because non-reusable used textiles must be sorted before recycling. This is currently done by hand. A technical solution is what makes recycling economically viable in the first place.'



Recycled end product, which is later used to produce automotive insulation.

Photo: NABU/Verena Bax

The mechanical recycling that has been used most of the time so far shortens the fibres, so that only a few recycled fibres are suitable for use in new textiles. For this reason, depolymerisation processes are being developed. These require more energy and chemicals, but enable higher-quality recycled fibres for new textiles. According to NABU, extended producer responsibility is necessary to finance and establish these processes.

This would have to supplement the EU's mandatory separate collection of used textiles, which will come into force in 2025.

In order to reduce the environmental impact associated with textile production, various approaches are needed: the priority should be to use textiles for longer. However, recycling used textiles that can no longer be used is also part of the solution and must be expanded in terms of both quantity and quality.



Images: TheDigitalArtist, pixabay

Technologically, all approaches have their merits for certain mass flows in order to increase the recycling and use of recycled materials from used textiles in new products. The technologies complement each other. After sorting for reuse, recycling processes should be prioritised as follows:

1. First mechanical recycling, as it requires the least energy.

2. Then comes solvent-based processing and depolymerisation, which require a similar amount of effort.
3. Finally, there is feedstock recycling, which consumes the most resources.

Hanisch: 'A circular economy starts with the design. For example, in order for textiles to be recycled, they should contain as few different materials as possible. To achieve this, we need ambitious ecodesign requirements for textiles. The focus here must be on durability and recyclability. Above all, however, incentives are needed to reuse recycled raw materials from old textiles. So far, this has hardly happened voluntarily.'



NABU-Factsheet Textilrecycling

Source: NABU