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Circular economy in the textile industry

Against throw-away culture and resource scarcity

This autumn the EU Commission will table its strategy for a sustainable textile sector. After all, the textile industry is considered one of the most environmentally damaging ones of all. One aspect of the EU strategy deals with the circular economy. So it is high time to part with linear approaches and orient oneself towards a circular textile economy. The corresponding ideas and products are already here.

Dr. Rüdiger Fox, CEO Sympatex Technologies, is a rigorous advocate of the circular economy. He has already won several awards for his sustainability-centred management. “Circular economy is the moral prerequisite for our continued use of synthetic materials,” says Fox. Action is urgently required, as the numbers from the EU Commission show. Since 1996 the per-capita consumption of clothing has increased 40% while its useful life has markedly decreased. Across the EU nearly 26 kg of textiles are bought per inhabitant and eleven kg are disposed of, with the majority of this being incinerated or ending up in landfills. Not only does Fox want to change this – the industry as a whole is looking for solutions. There are already many initiatives and networks in existence – such as the Expert group “Circular Economy” that has formed within the “Textilbündnis”. Late 2020 saw approaches for demand analysis and clustering of themes being addressed here. “With a view to linking recycling technologies and Design to Recycle with each other, the project ‘Product Clones’ was initiated. Here all companies in the expert group were able to submit non-recyclable products,” says Nicole Hühn, CSR Teamlead at Sympatex, and adds: “In the University Niederrhein/Wuppertal Institute we found a suitable partner to



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study non-recyclable products. The results are acted out and used to develop alternatives.”

The recycling rate must be clearly optimised

The optimised recycling of textile production waste is the major theme of the RE4TEX network. Joining forces here are not only research institutes but also environmental and recycling companies with the aim of noticeably increasing the recycling rate in the textile industry. One of the partners is the “Sächsisches Textilforschungsinstitut (Stfi)” (Saxon Textile Research Institute) in Chemnitz. This institute is currently busy erecting a new set of buildings as a centre for sustainability. The focal themes will include fibre-based mechanical recycling of textile fabrics and yarns as well as research on their reusability.

What already works in sports – Sympatex offers an outdoor jacket with zippers and buttons made of 100% recycled PET bottles – proves quite complicated for workwear. After all, wear resistance and colour fastness but also wear comfort are essential demands made on garments that protect their wearers and are worn for a long time and gladly. As a rule, blended fabrics are used for this today. “But,” says Fox “you are not allowed to blend materials because you would be producing special waste again.” The hope is that the market will respond faster with increasing demand. “If I say today I want recycling, most respond – oh you are the only one. The minute everybody wants it, the market will probably turn very quickly,” Fox believes. He considers circular the new normal. “Just the way it is in nature,” he underlines.





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Recycling programme with Schiphol Airport

Workwear specialist Fristads views climate change and environmental destruction as a challenge the textile industry also has to help mitigate. This Swedish company is reducing the carbon footprint of its products from their development to the end of their lifecycle. Based on the Environmental Product Declaration (EPD)* the Swedes measure the environmental impact of their garments. On a continuous basis materials are being replaced by more sustainable alternatives and the portfolio is being extended to include a new Green Collection every year. Digital Sales Manager for the DACH region at Fristads, Marcus Gotthardt, observes that “the sustainability approach and circular thinking have come to play a crucial role in the purchasing decisions taken by major enterprises and public tenders.” Fristads has initiated several projects for worn clothing. In the Netherlands, for instance, the Swedes have established a recycling programme with public transport company Arriva and Schiphol Airport. Old garments are repaired and “overhauled” in such a way that they can be used as a “Second-Life-Stock“. Unwearable garments are collected, shredded und processed into knee pads or car interior parts.



Promote closed-loop systems and avoid waste of resources

Research experts or people like Gerhard Becker, Managing Director of the Maxtex network, see promising approaches being followed in the industry. The textile research done by 16 German textile research institutes supported by “Forschungskuratorium Textil” of the textil + mode Confederation, helped develop ideas for better separation of worn textiles and clean-grade recycling. A process chain is currently being developed that analyses the quality of yarn or cutting waste in order to be able to judge the product quality of recycling textiles up front. This allows more waste to be recycled into high-quality products. This approach is



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aimed at counteracting the waste of widely used plastics going forward.

Becker's network also includes the Austrian company Lenzing, which has gained experience in the upcycling of cotton fabric residues, for instance from apparel production through its Refibra technology. These residues are mixed with cellulose and processed into Tencel Lyocell in order to produce new fabrics. The Maxtex network is busy making sustainability across the entire supply chain possible and turning it into a business case. Becker sees great potential in household linens because these can be reclaimed easily and in huge amounts. "After all, it is not only the separation of waste textiles and clean-grade recycling that are especially demanding. The logistics for reclaiming textiles are not easy either," he says offering food for thought.

Green Deal for climate-neutral, circular-economy oriented business

Launching the European Green Deal and the Action Plan for the Circular Economy the EU Commission wants to help the textile industry out of this phase of "weak supply & demand". "This initiative aims to promote the transition to a climate-neutral, circular-oriented economy, where products are engineered in such a way that they are more durable, recyclable as well as easier to reuse and repair." The EU rates the potential for a circular economy in the textile sector as high.

Furthermore: "According to the Circular Economy Act textiles are also to be sorted nationwide starting in 2025. They must no longer be disposed of in the residual waste bin. And in public procurement recyclable products shall be given preference over non-recyclable ones," says Hühn looking to the future. That's why you can't start thinking about recycling soon enough, even at the design stage. Material producers will have to offer circular



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products in future. Consumers should wear their garments for a longer period and feed them to recycling at their end of life. Finally, sorting and recycling facilities should be enabled to work more effectively according to information supplied with the garments.

Additional Information

*EPD (Environmental Product Declaration) provides an overview of the environmental impact of materials, products and components. The certification is based on ISO 14025 and is controlled and verified in accordance with the requirements of the International EPD® System. Fristads is the first apparel company to use the EDP. It is particularly established in the construction sector. Fristads has developed the EPD with the help of the state-run Swedish research institute RISE in order to boost transparency in apparel production. Now, the standardised tool is at the disposal of the whole textile industry. With this move the Swedish workwear specialists hope to raise awareness of manufacturers, supply managers and end users.



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Captions

Fristads Green Collection – certified with an Environment Product Declaration (EPD) that contains information on the total environmental burden of the product.

Sympatex – closing the loop

Sympatex – wear2wear is an alliance of companies. Everyone in the textile cycle makes its individual contribution to manufacturing high-quality products from 100% used textiles.

Sympatex – hybrid utility jackets from 30% old textiles and 70% recycled PET Bottles – resulting from the wear2wear cooperation

Sympatex – utility jacket with logotype

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