FOCUS TOPIC

Beyond Bottles – The Future of Polyester

This year's Focus Topic "Beyond Bottles" highlights the importance of alternatives to PET recycling – in particular with regard to upcoming legal regulations and circular economy principles. Considering the variety of polyester types, micro-plastics and the increasing need to replace PET with alternative raw materials, the branch is now facing major challenges. Solutions to this could include an increase in textile-to-textile recycling, along with polyester alternatives from food waste and the increased deployment of natural fibers.

One kilo of yarn can be manufactured from eight plastic bottles. Recycled polyester can usually compete with newly produced polyester in terms of quality, refraining in its production from the use of toxic chemicals, consuming less than half the amount of energy and resulting in around a third less CO2 emissions. Nevertheless, environmental organizations are not always fervent supporters of "bottle" fashion: used PET bottles should ideally be recycled into new ones, allowing them to be continuously recycled – unlike jackets and sweaters made from multi-component materials, which are thrown in the waste at the end of their life cycle. Furthermore, hardly any bottles from the deposit cycle in Germany contribute to new materials. Instead, most of them originate from Asia, with a quarter of them coming from Chinese coastal regions. However, recycled plastic is not a license to happily consume plastic. Allowing fewer plastic bottles into circulation and wearing clothes for longer remain the best and most environmentally friendly alternatives. In addition, the industry must always be on the lookout for sensible future alternatives.

Recently adopted EU regulations on recycling for the waste- and plastics industry aim to increase the use of used beverage bottles in the recycling process, which in turn will lead to a potential shortage of PET as a raw material, an essential component in the apparel industry. By 2027, the European Commission is expected to introduce minimum quotas for the use of recycled plastic components in new products. These quotas would be mandatory for the plastics processing industry and are likely to be between 15 and 30 percent. The introduction of such quotas will lead to the plastics processing industry having to adapt its production in order to use more recycled plastics. As a result, the demand for high-quality recycled plastic will increase significantly. Since high-quality plastic is currently in very short supply, the increase in demand could lead to a significant rise in prices.

The EU Green Deal and the New York Fashion Sustainability & Social Accountability Act are aligned with the principles of the circular economy, which are based on the following principles: Preserving the original product for as long as possible, eliminating waste and harmful chemicals from the production process, the regeneration of new business systems and of nature itself. The main focus of these principles is on the promotion of eco-design, increased diligence, the introduction of digital product IDs and the development of new business models. The challenge is to find a universal solution that could serve all branches. The industry must proactively strive for viable solutions.

The focus topic opens up a wide range of opportunities, when one considers the various types of polyester that exist: PHA, PHB, PTT, PBT; even polycarbonate. It has also lead to an increased focus on micro-plastics (and the misinformation associated with them).

It increasingly poses the question: do we need to replace PET as a material source or look for alternative source materials? Are there more suitable types of material for relevant applications? What could possible solutions look like at the end of a life cycle? Is the textile industry, with its complex manufacturing processes, sufficiently equipped for the changes ahead?

Textile-to-textile recycling will play a crucial role in the search for alternative raw materials, especially in light of upcoming legislation and circular economy principles.

Nevertheless, the issue of feasibility will be of increasing importance, especially in terms of mixed fibers, or questionable chemicals (PFAS) contained in waste material. In the sorting process, the extended use of automation (AI & DPP) will be unavoidable.