CIRFS
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MMF and Circular Economy

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The MMF industry has been active on circularity for many years and is not only a frontrunner in this sector worldwide but also inside the textile value chain. CIRFS believes that in order to reach a full circular economy in fibres and textiles the following items have to be highlighted:

- *Eco-design in view of recycling, allowing to identify the components of the textile will be of the utmost importance, including the necessary standards.*
- *An efficient waste collection and handling system, including the necessary transparency and traceability will be needed. The waste status should be clarified and secondary raw materials that can be used should remain in Europe.*
- *Technology for separating and recycling fibres has to be further developed. Ecological and economic aspects of recycling need to be considered when deciding about the best end-of-waste option.*
- *The responsibility must be shared by all related stakeholders, globally. Supporting measures from regulating authorities will be important. EPR schemes should be encouraged.*
- *The issue of imported textiles should be addressed so as to determine who owns the end-of-life material and who processes it as the secondary material.*
- *The benefits of biodegradable MMFs in the biological cycle of circular economy should be part of the considerations.*
- *A smooth interface with REACH will be essential. Historic waste will need to be dealt with.*
- *Standardization and harmonization of definitions, amongst other of definitions is an indispensable pre-condition of circular economy.*
- *Mutual collaboration, encouragement and support of all stakeholders will be essential elements.*
- *Public and private funding should be envisaged for R&D on all items leading to circular economy.*

In the global textile world, ca. 100 mln tonnes of fibres are produced annually, about two-thirds of the fibres are man-made (MMF), synthetic and cellulosic. This represents more than twice as much as the annual cotton production, the largest natural fibre and much more than wool (ca. 1 mln t) or other smaller natural fibres such as silk, flax, hemp, sisal, bamboo and others together valid less than 0.5 mlnt.

There is no constraint on the production volume of MMF in Europe to meet the increasing demand of clothing, home and technical textiles used e.g. in application areas such as medical, hygiene, construction, automotive, aerospace, wind-energy or industrial conveyer belts, to name just a few examples. However, increasing the volume of natural fibres such as wool and cotton means the use of additional land, water as well as other substances, which also needs to be seen in the framework of the current climatic constraints and the competition with food crops.

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In 2018, the MMF industry in wider Europe had a turnover of 4.6 mln tonnes (incl. spunmelt), employing ca. 20,000 people, the EU exporting € 2.5 bln outside its territory. It is to be noted that the sector is R&D intensive. Product innovation in MMF is crucial as it brings fundamental added value to textiles, making the European value chain competitive vs. other global competitors. The MMF industry has been active on circularity for many years and is not only a frontrunner in this sector worldwide but also inside the textile value chain.

In the production of MMF, every possible effort is being undertaken to maintain the value of products, materials and resources in the economy, while minimizing the generation of waste. In addition to maintaining the highest efficiency in the production process by the utmost care in reducing waste, every waste produced possible is recycled to save on resources. Likewise, transformation of wood to man-made cellulosic fibres represents the natural cycle of the circular economy, allowing products made from these fibres to be returned into nature based on their biodegradability and compostability properties.

Apart from existing efforts, additional actions are being undertaken to increase the recycling of secondary materials, fibres and textiles. Some of these practices such as bottle-to-fibre recycling (mechanical recycling) have been used in the industry for several decades, others such as chemical recycling and depolymerization are more recent. Indeed, more than 60% of polyester staple fibres produced in Europe originate from waste PET bottles using up to 70% of all waste PET bottles in Europe, waste from cotton fibre processes is being converted into cellulosic fibres, waste fishing nets, waste carpets or other materials into polyamide textile fibres and furthermore high performance technical textiles into fibres reinforced engineering materials – to name a few. In addition, other methods are being tested by industry on a pilot or even already on a commercial scale.
CIRFS, as the representation of the European MMF industry, collaborates with other sector representatives in the value chain and believes that in order to reach a full European Circular Economy for Textiles, the following items need to be highlighted:

- Lacking eco-design of textile articles is one of the main technical barriers to a proper recycling process. Any steps to a better **"design for recycling"** will speed up recycling considerably and broaden the volume of textiles recycled. Indeed, today most textiles are not designed for recycling. Often, complex material blends are used, which make it difficult to separate the components at the product's life end. Examples may refer to the actual garment composition of the fabric in terms of fibres (e.g. 76% Cotton, 19% Polyester, 3% Polyamide, 2% Elastane) but also to the use of undefined - generally synthetic - materials in sewing thread, labels, buttons... as well as of hard to recycle/remove dyes and other textile auxiliaries. Eco-design standards are necessary, and it should be mandatory for all textiles – including imported textiles – to be designed in such a way as to promote the highest value end-of-life utilization. This should also take into account the necessity to make ingredients "recognizable". Not being able to easily identify fibre type and content will make proper recycling almost impossible. Standards for labelling and thus traceability must also be a part of eco-design as they are inextricably linked.
- **Waste collection** is insufficient **and handling** is not adapted – this is the second biggest barrier. Existing schemes need to be improved and streamlined; others developed in order to accelerate the process in reaching the targeted volumes for a circular economy in textiles. In particular, too much of pure PET feedstock-based packaging material is disposed of in mixed

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waste streams. It therefore becomes impossible to automatically sort it out in a suitable quality, given the current technology. For finished products made from recycled feedstock, **transparency and traceability** of the recycling pathway should be defined. Moreover, the **export of valuable and reusable waste materials** such as collected PET bottles to non-EU countries, especially to Asia, should be restricted to avoid good quality material leaving the EU and re-entering the EU again in the form of fibres or textiles produced in third countries with a much less favourable ecological footprint. Materials or products that fall under eco-design requirements should be exempted from the status of "waste", the transporting of which is far from being harmonized across the EU. They should be classified as **secondary raw materials**, which would directly help the shift towards an economy valorizing ever higher qualities of recycling.

- **Technology for separating and recycling** fibres, in particular in mixed-fibre textiles and garments needs to be further developed, although it will be easier once the above two points are optimized. For the recyclers to have a "business case", European support for R&D should be explored. Once the above issues are solved, returned fibres from textiles waste can be recycled with existing and new technologies either by direct reuse or as a secondary material fed into the MMF production process or into other sectors' (e.g. engineering plastics) production processes where they can deploy the best features and gain the highest value added. Synthetic fibres have a strong connection to the plastic world, since a second life for fibres can be a new smart life in plastics. However, the ecological footprint (energy and water included) of recycling must be acceptable compared to the use of virgin materials in the mid- and long-term and **LCA** studies should be carried out to find out which is the best option, from an ecological and economic point of view, for the management of waste products (e.g. recycling versus energy recovery).
- When it comes to the **economics of recycling**, the cost of this resource-preserving initiative should be borne by **all stakeholders** - from producers to retailers such as the major brands, consumers and waste handlers - **globally,** including those outside the value chain, and not just by one stakeholder such as consumer or producer, in particular fibre producers who bear a large part of the responsibility. Otherwise, there is no incentive to making circular economy fully happen. **Supporting measures** should come from regulating authorities in the form of framework conditions for an ecological tax reform, and of incentives such as tax benefits, funding etc. Extended Producer Responsibility (**EPR**) schemes should be encouraged. Indeed, financial resources collected by effective and carefully designed and managed EPR schemes should support those circular economy platforms allowing products to become secondary raw materials, as opposed to waste. EPR schemes for textiles or their products should be mandatory.
- In addition, the issue of **imported textiles** should be addressed so as to determine who owns the end-of-life material and who processes it as the secondary material. For this purpose, traceability and labelling aspects will again have to be addressed.
- The benefits of biodegradable MMFs in the biological cycle of circular economy should be part of the considerations. Indeed, for textiles, **biodegradation** is usually not a preferred end-waste option, but it should be considered as one of the solutions to particular waste issues. For certain non-wovens and single-use applications of fibres, biodegradation or composting can offer advantages in biological cycles, for example in agriculture or geotextiles.

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- A smooth **interface with REACH** will be essential, and there should be no unjustified bureaucratic barriers on chemicals in waste and secondary raw materials preventing their recycling nor any overlap with other measures such as e.g. on microplastics, in order to speed up the achievement of the desired recycling targets. Historic waste will have to be dealt with as well.
- As earlier mentioned, **standardization and harmonization**, amongst others, of definitions of secondary materials, waste, recycling, etc. at the EU level will need to be addressed with the support of the European Commission. Stricter rules may be decided at a later stage in order not to slow down the process in its first stages.
- **Mutual collaboration, encouragement and support** between industry, authorities and other stakeholders (unions, consumer organizations, NGOs etc.) are needed in order to preserve the earth's resources. Negative campaigning and unilateral blaming should be avoided. As mentioned above, **public and private funding should be envisaged for R&D** on all items leading to a circular economy.

As a supplier of materials to the textile value chain, the European MMF industry will continue its efforts and is ready to take further responsibility in tackling the issue of waste minimization, together with all stakeholders from downstream users to recyclers, with the support of European authorities.

CIRFS is the trade association representing the interests of the chemical fibres industry in wider Europe. It currently has about 30 full members representing ca. 80% of the European production and includes members in the EU, Switzerland, Turkey and Belarus.
It defends members' interests in fighting for fair trade, attacks trade barriers and distortions of competition, encourages innovation, promotes objective standards and test methods and demonstrates advantages and sustainability of man-made fibres. Additionally, it works with a scientific approach to regulation on health and safety and environment and provides its members with market information and analysis.