CIRFS
EUROPEAN MAN-MADE FIBRES ASSOCIATION

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MMF and Marine Litter

Updated CIRFS Position Paper

*There should be **no marine litter**, and if unavoidable, all efforts should be made to reduce it to a minimum. A structured approach is needed in order to take effective measures.*
*Microplastics in marine litter are a **global** phenomenon and must be tackled at global level, **all stakeholders** in the value chain until the final consumer and to the recycler being fully involved.*
*The issue is **complex**. CIRFS believes that in order to further prevent microplastics from fibres forming and reaching marine and other environments a three stage approach is needed:*

1. ***Define** what "microplastics" is and differentiate between waste microplastics shed from synthetic textile fibres and other fibre-shape microplastics. Definitions are also needed to distinguish between man-made fibres of a micro-size that are produced for certain specific end-uses ("microfibres") from microplastic particles originating from synthetic fibres.*
2. ***Measure** and **identify** the main sources and causes.*
3. ***Tackle** the issues to prevent or to catch the microplastic before it reaches the environment in an uncontrolled way.*

Each source of pollution may have its own roadmap for prevention. Appropriate human behaviour, improved infrastructure and processes and the implementation and enforcement of legislation are the key.

CIRFS, European Man-made Fibres Association welcomes the European Commission initiative of addressing the issue of microplastics in the environment.
Today, ca. **three-quarters of the fibres used worldwide in the textile industry are man-made fibres** (MMF). MMF are used in a large number of applications, ranging from apparel and home textiles to technical and industrial textiles. Without MMF it would be impossible to clothe the entire world population. In addition, MMF can be designed and engineered to different specific functionalities allowing to manufacture, amongst others, technical materials that permit to save on energy and other resources or reduce carbon and other emissions to the environment (e.g. composite materials).

The European MMF industry, represented by CIRFS, has been fully supporting the sustainability of MMF production processes and products from cradle to cradle, including use and end-of-life in order for the impact on the environment to be reduced to a minimum. As a matter of fact, the European MMF industry has been a pioneer in **recycling and circularity** for many years.
For over a century, MMF have been processed in the textile industry without any significant concern to human health. Such fibres are produced in Europe by specialist companies with a great degree of attention not only to the health and safety of their employees but also to the consumer, as well as to the environment. It appears that when looking at their life-cycle, and compared to natural fibres, the ecological impact of MMF is very often better than that of natural fibres (e.g. water use).

Over time, scientists have found that important amounts of plastic parts end up as waste in marine environments, where they degrade into microplastics, mainly through abrasion. Microplastics may enter aquatic environments directly from different sources. Studies have suggested that synthetic microplastics could be found as debris in marine environments where they may even be ingested by marine species and enter into the food chain.

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Human behaviour, inappropriate waste management and insufficient implementation and enforcement of legislation seem to be the main causes of this phenomenon. Thus, the incorrect disposal of certain textiles, leads them to enter surface waters and marine environments where they can degrade further into microplastics. Similarly, when laundering textiles, some small quantities of fibres may be shed during the washing process and break down further. It appears that microplastics resulting from these may not be entirely retained by the filters of washing machines, and can end up in the sewage. Similarly, microfibres captured by dryer filters can find their way into the sewage if not properly disposed of. Studies suggest that these microfibres may not be efficiently captured by wastewater treatment plants, resulting in minor releases to the environment. In addition, sewage sludge containing microplastics may not be properly disposed of.

As a matter of fact, no clear **methodology** is available so far, neither to **measure** the phenomenon nor to distinguish between different fibres, with as a result different and sometimes confusing measurements, in which e.g. natural or cellulosic fibres are mixed up with synthetic fibres and where other microplastic particles are mistakenly considered as particles of fibres used in textiles. This has sometimes led to reports with wrong conclusions, misleadingly used in communication on the subject.

In this context, it is important to note that certain man-made fibres are not "plastic" and therefore do not contribute to the microplastic pollution. These cellulose fibres with their generic names Viscose ("rayon"), Modal and Lyocell – as well as others such as acetate in the literature called "regenerated", "man-made" or "wood-based" cellulose fibres - are biodegradable, similarly to natural fibres. This biodegradability of cellulosic fibres in relevant natural and "man-made" environments is verified by international standards and by international certification organizations.

Marine Litter is a global issue that needs **global action**. Regarding fibres, more than three-quarters of the man-made fibres and textile industry are located in Asia (88% of all MMF are produced in Asia). A similar ratio (83.5%) applies to imports of apparel in the EU28, and a slightly lower (71.4%) to imports of textiles in the EU28. **CIRFS** has been encouraging to reduce waste in fibre production processes and after final use. It has been collaborating closely with the plastics industry and is a signatory of the **Global Declaration on Marine Litter Solutions**. Examples of actions undertaken in the man-made fibre sector are numerous, e.g. the recycling of waste PET bottles, the collection and recycling of waste fishing nets, old carpets or ropes into fibres.

On December 13, 2017, CIRFS signed a **cross-industry agreement for the prevention of microplastic release into the aquatic environment during the washing of synthetic textiles** https://www.cirfs.org/file_access/application/files/6015/4228/3968/2018_Cross_Industry_Agreement_.pdf**.** This agreement was officially launched and endorsed by the European Commission and integrated into the European Strategy for Plastics in a Circular Economy, published on January 16, 2018. The aim is to measure, understand and find solutions to fibre shedding. Work on a common clear methodology to quantify fibre release is under completion. It should be finalized soon and will be the basis for an official standard. Another official standard to define fibre microplastics in the environment is in preparation as well.

For a long time, CIRFS has been advocating for textile production processes and final products not to result in a spill of fibres ending up in rivers and oceans. **End-of-life textiles should not be disposed of carelessly** (e.g. old fishing nets or ropes should not be thrown into the sea, certain wipes not into the sink). Awareness raising campaigns among the public must be encouraged.

In addition, during the use of textiles, **microplastics should be captured** in order to prevent them from reaching the environment in an uncontrolled way. In washing machines and dryers (household and

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industrial), filters should be improved in order to retain microplastics. Other catchers may be used as well. Correspondingly, filtration in sewage plants should be enhanced, too. Besides, sewage sludge should be handled and disposed of in a proper way.

Additional elements such as pre-treatment, pre-washing, or the influence of temperature, detergent and fabric softener composition on fibre shedding should be further explored, too.
As for textile articles, fibrillation should be prevented by identifying the reasons like abrasion in washing and drying or due to specific uses, inadequate textile materials, and others. Technologies and processes to prevent fibrillation will need further study.

Cooperation with other stakeholders such as textile producers, laundering equipment and detergent manufacturers definitely needs to be further developed. It would be advisable to organize cross-working committees to work out ideas and plans to limit microplastics from textiles to enter land waters and marine environments by proposing effective measures and sound information to consumers.
CIRFS will continue to take responsibility and further tackle the microplastics issue as a supplier of fibres to the textile industry with the support of downstream users, other stakeholders in the value chain and those related thereto, recyclers as well as authorities and others. Efforts in the right direction by all stakeholders must be enhanced and more visibility on the achieved progress should be made public.

About CIRFS:

CIRFS is the association for Europe's € 10.5 billion man-made fibres industry, representing the industry to the European authorities and providing the industry with a wide range of services. Its members cover about 80% of European man-made fibres output.

The European man-made fibres industry, with a total production in 2018 of ca. 4.6 million tonnes, is the world's second largest in terms of output and one of the global leaders in terms of innovation and quality.
Man-made fibres are used in every aspect of daily life: not only in apparel and furnishings, but also in automotive applications (interiors, insulation, seatbelts, airbags, tyres,…), industrial uses (conveyor belts, ropes, bulk containers, hoses, cable reinforcement, etc.), construction (e.g. geotextiles, cement reinforcement, insulation, weather protection), agriculture (agro textiles) and much else. They can be precisely engineered with characteristics such as flame retardancy, bioactivity, strength, warmth, waterproofing, moisture management, conductivity, and many more as needs arise.