Federation of the European Sporting Goods Industry

FEDERATION OF THE EUROPEAN
SPORTING GOODS INDUSTRY

FESI POSITION
on the public consultation investigating options for reducing releases to the environment of microplastics

Brussels, 16 October 2017

Key Messages :

- The sporting goods industry welcomes the efforts made by the European Commission to investigate proportionate ways to address the marine litter within the upcoming plastic strategy which will be a main pillar of Circular Economy.

- At this point, there is no scientifically confirmed method available to measure release and shedding of microplastics.

- While legislation is essential to achieving policy objectives and creating benefits for businesses and society, it can however also generate unwanted (additional) regulatory costs and burdens. Determining the appropriate legislative option for reducing microplastics releases is a complex exercise which should strike a right balance between efficient deterrence and unnecessary burdens for companies who are genuinely trying to comply.

- FESI supports the Commission's proposal to develop a measurement protocol for the rate of loss of synthetic microplastics from specific items of apparel.

- The release of textile-based microplastics is multi-sectorial and the entire life cycle of a garment should be taken into consideration in order to identify the main hot spots along the chain and develop effective solutions mutually.

Introduction

Marine litter is a global environmental problem. The vast majority of the litter found on shorelines and at the sea surface is plastic and it has been estimated that up to 12 million tons of plastic litter could be entering the ocean every year. Therefore, the sporting goods industry supports the efforts made by the European Commission to investigate proportionate ways to address the problem within the upcoming plastic strategy, which will be a main pillar of the Circular Economy Action Plan.

Research on the flow of synthetic fibres from apparel to the washing machine to the ocean is not yet fully defined and mature, but has only started to emerge instead. However, a growing number of companies are starting to take this issue seriously; committing resources to study the scope of the problem and develop an understanding of which steps can be taken to help consider possible solutions.

FESI highly welcomes the opportunity to take part in the public consultation and to contribute with information, insight and recommendations based on the current data provided by companies and studies to aid the European Commission's considerations.

Research status on the influence of various construction processes or washing habits on the amount of microplastics released from apparel/textiles

Currently there is no scientifically confirmed method available to measure the release and shedding of micro plastics over the course of a garment lifetime. The limited research in the area shows disparities in shedding rates of up to four orders of magnitude, suggesting inappropriate methodologies and methods of analysis.

As an industry, we are still in the process of finding a reliable way of measuring microfiber release for one single fabric, let alone the combination of multiple fabrics, combined with multiple wash variables, calculated to represent a number of consumer wash behaviour over the lifetime of a garment. It is certainly too soon to be making any estimates on this and FESI supports the Commission's initiative to push for developing a measurement protocol for the rate of loss of synthetic microplastics from specific items of apparel. This could be achieved through a cross sectorial industry consortium working with CEN and should be a prerequisite when considering effective policy options for the future.

Also, it looks like wastewater treatment plants may play a more important role in capturing microplastics. Upgrades to current systems can help increase capture rates. However, FESI does not know the costs associated with these upgrades, and thus as to whether this solution is (economically) viable. FESI would therefore support a study to determine this before considering any policy options.

Alternatively, more focus could be put on washing machine manufacturers to find ways to capture the apparel fibres so that they do not ultimately enter wastewater treatment systems. Already, manufacturers add filters to driers to ensure that apparel dust does not get into the air. While a filter for apparel fibres might be more complex, all options should be assessed.

During production

There is little concrete information regarding the influence of production processes on release of microplastics; however, this is an important point for consideration. During their manufacture, fabrics are washed repeatedly after many production steps (dying, finishing, etc.), often after exposure to chemicals and extreme mechanical strains. Other production processes may also release fibres from the textiles, the latter could be captured by state-of-the-art effluent treatment (Total Suspended Solids being an effluent parameter), although, waste water treatment plants are not specifically designed to retain them at this stage. Upgrades to current systems might help increase capture rates.

Post production

A recent report has suggested that specific factors in the manufacturing of polyester and acrylic textiles could influence microfibre shedding from a finished product while it is being laundered, or even during normal wear, such as too high melting temperature during yarn production.

Other research is in progress and should produce results in the coming months, looking at variables such as virgin versus recycled polyester, different yarn structures, etc. FESI calls for the Commission to investigate this research before considering any policy options.

Fabric Structure

There is little published research on the microfibre shedding rates of synthetic apparel. There are few key papers in the area.[1] Early research was carried out by environmental institutions and showed, from a textile engineering viewpoint, inconsistencies in sampling, test methodologies, and analysis. Emerging research is proving to be more balanced[2] but highlights the need for more work in the area of standard development. As such, much more research is required in these areas before any official statements could be given.

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[1] Browne, M.A., Crump, P., Niven, S.J., Teuten, E., Tonkin, A., Galloway, T., Thompson, R., 2011. Accumulation of microplastic on shorelines worldwide: sources and sinks. Environ.Sci. Technol. 45, 9175–9179. http://dx.doi.org/10.1021/es201811s

Hartline, N.L., Bruce, N.J., Karba, S.N., Ruff, E.O., Sonar, S.U., Holden, P.A., 2016. Microfiber Masses Recovered from Conventional Machine Washing of New or Aged Garments. Environ Sci Technol. 2016 Nov 1;50(21):11532-11538 DOI:10.1021/acs.est.6b03045

Napper, I.E., Thompson, R.C., 2016. Release of synthetic microplastic plastic fibres from domestic washing machines: Effects of fabric type and washing conditions. Marine Pollution Bulletin 112 (2016) 39–45. http://dx.doi.org/10.1016/j.marpolbul.2016.09.025

[2] Roos, S.,Arturin, O,L,. Hanning, A.C., 2017. Microplastic Shedding from Polyester Fabric. Mistra Future Fashion. http://mistrafuturefashion.com/wp-content/uploads/2017/06/MFF-Report-Microplastics.pdf

There are a number of research projects currently in progress that could produce more meaningful evidence on this in the coming months.[3]

On a side note, there is at this point no reliable evidence to suggest that man-made fibres are more environmentally harmful than natural fibres. As natural fibres are staple (short) fibres, they are likely released at least in similar, if not greater amounts. While natural fibres are biodegradable, this is dependent upon very specific environmental conditions in terms of temperature and moisture levels and there have been no research results to support that biodegradation would occur in saline aquatic environments. Hence, natural fibres may well have similar ecological effects. Similarly, how well very small synthetic fibres breakdown in an aquatic environment requires further study. We know, for example, that oils from which these fibres are derived can be broken down by aquatic organisms. Microfibres have been reported to potentially act as carriers for other toxic chemicals and the fibre surface-area-to-volume ratio could certainly affect this. However, there is no evidence yet to support this and further, other legislative measures have been introduced which seek to reduce the toxicity of textiles to begin with.

Temperature

To date, there is no accepted, standardized method to measure fibre release from wash; reliable data on temperature is therefore limited.

Due to polyester and nylon being stable to quite high temperatures, it is unlikely that temperatures manageable in a domestic washing machine (i.e. Max 90° C) would do much damage to fibres. Other wash parameters such as washing agents, detergent type, softener, washing machine type, cycle and fill are much more likely to influence shedding behaviours, as well as use conditions (e.g. exposure to UV, abrasion during use, wash frequency, etc.).

Again, there are a number of research projects currently in progress that could produce more meaningful evidence on this in the coming months.

Apparel products are certainly not the only source of microplastic particles that are entering the oceans. Other industries are also contributing to this problem, as are things like fishing nets, bottle caps, the wearing of tyres, packaging and plastics bags that break down in the ocean. A key research priority moving forward is to quantify the magnitude of the contribution of the various sources of microplastics to oceans.

[3] Outdoor Industry Microfibre Consortium http://www.europeanoutdoorgroup.com/news/outdoor-industry-microfibre-consortium-formed

Association of the German Sporting Goods Industry (Bundesverband der Deutschen Sportartikel-Industrie e.V. ; BSI) conducts a Research in Collaboration with Two Universities and an Environmental Organisation https://www.bsi-sport.de/fileadmin/assets/bilder/logos/TexitleMission/Press_Release_TextileMission_13.09.2017_english.pdf

SINTEF Project Norway http://www.sintef.no/en/projects/microfibre-evaluating-the-fate-effects-and-mitigat/

Conclusion

The release of microplastics is multi-sectorial and the entire life cycle of a garment should be taken into consideration in order to identify the main hot spots along the chain and develop effective solutions mutually. It looks like wastewater treatment plants can play a role in capturing microplastics. Upgrades to current systems can help increase capture rates. Washing machine manufacturers should also be part of the equation to find ways to capture the apparel fibres so that they do not ultimately enter wastewater treatment systems and, consequently, the oceans. Therefore, not only textile manufacturers but numerous actors have a role to play in addressing this global challenge, ranging from consumers, apparel manufacturers, washing machines producers, detergent suppliers to wastewater treatment plants and waste operators.

Supporting scientists' work to gain a better understanding of the types and sources of microplastics and their ecological and public health impacts is crucial and public authorities and the industry should share this effort.

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FESI directly and indirectly represents approximately 1,800 sporting goods manufacturers through its 12 national associations, its Special Groupings (European Outdoor Group), its retailers and its directly-affiliated member companies. The European sporting goods industry employs over 640,000 citizens in the EU 28 with an approximate annual turnover of 66 billion euros. FESI members include companies such as: adidas, Amer Group, ASICS, Dainese, Diadora, Lotto, New Balance, Nike, Pentland, PUMA, Salomon, Saucony and Umbro. Our National Federations are located in Austria, Croatia, Czech Republic, Denmark, France, Germany, Greece, Italy, the Netherlands, Spain, Turkey and the United Kingdom.

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