The BTMB campaign demands restriction of all intentionally added microplastics under REACH

Polymers are exempted from standard REACH procedures, which means that they are not Registered or Evaluated by the European Union. Consequently, there is very limited information on polymers within the REACH system. Groups of polymers such as intentionally added microplastics may, however, be subject to authorisation and restriction. ECHA is requesting information on all possible intentional uses of microplastic particles in products in order to determine whether they pose a risk to the environment and human health.

There is an abundance of scientific evidence regarding the potential risk that microplastics pose to the environment and to human health. Especially the chemical properties of a polymer compared to its monomer concerning biodegradability and persistence is alarming. Long polymer molecular chains are far less biodegradable than the small monomers. Amongst the most daunting effects are:

- Plastic nanoparticles reduce survival of aquatic zooplankton and penetrate the blood-to-brain barrier in fish and cause behavioural disorders.[1]
- Plastic microbeads hinder the growth of floating aquatic plants such as the floating freshwater plant duckweed *Lemna minor.*[2]
- Microplastics are ingested by freshwater and marine species.[3]
- Microplastics bioaccumulate in animals across the aquatic food chain and end up in the seafood on our plate.[4]
- Microplastic pollution represents an emerging global change as well as a growing threat to terrestrial ecosystems.[5]
- Microplastics persist for hundreds of years in marine and freshwater environments and are a threat to human health.[6]

As a group of polymers, there is limited or no information on the behaviour of microplastics in the environment. Manufacturers are supposed to maintain safety data sheets for every ingredient they manufacture. In many instances, the required information on the environmental friendliness of an ingredient is unclear or lacking. For example, a high concentration of polymers such as polyethylene-glycol (PEG) with variations of chains are widely found in cosmetics. In the Beat the Microbead (BTMB) database, many products were found to contain some variation of PEG. The safety data sheet of this substance does not provide any information on its behaviour in the environment. The reason behind such a lack of information is related to the fact that many polymers are considered “polymers of low concern”. Because of this, we have little information on the specific behaviour of polymers in the environment from manufacturers.

Additionally, natural alternatives for these substances are widely available; the restriction of microplastics would enhance the market for alternatives. The Plastic Soup Foundation provides the ‘Look for the Zero’ certification as part of the Beat the Microbead campaign. We check the ingredients of every product sold under a “Zero” brand for microplastics. Companies that embrace the Zero make the statement that their personal care products are completely free of microplastics. There are currently 55 brands from around the world that are certified as “Zero” brands. Indisputably, this provides ample evidence that microplastics are not an indispensable ingredient for cosmetic products.

The European Commission’s consideration of a restriction on intentionally added microplastics is a crucial first step. The Plastic Soup Foundation wants all intentionally added microplastics to be

restricted under REACH, regardless of the external dimension, water solubility, lower size limit of the substances and their function in leave-on and rinse-off products.

The Plastic Soup Foundation furthermore demands the general exemption of all polymers under REACH to be lifted. This means that all polymers should be registered as chemical substances so that they can be evaluated. If these polymers are shown to pose a potential risk to the environment or human health, they should be restricted.

Notes

[1] K. Mattsson et al., Brain damage and behaviour disorders in fish induced by plastic nanoparticles delivered through the food chain, www.nature.com/scientificreports 13 September 2017.

T.S. Galloway et al., 'Interactions of microplastic debris throughout the marine ecosystem', in: Nature Ecology & Evolution, 1, article number 0116 (2017).

[2] G. Kalčíková et al., 'Impact of polyethylene microbeads on the floating freshwater plant duckweed Lemna minor', in Environmental Pollution 230 (November 2017), pp. 1108-1115.

[3] M.S. Savoca et al., 'Odours from marine plastic debris induce food search behaviours in a forage fish', in: Proceedings of the Royal Society B, 16 August 2017.

[4] K. Tanaka & H. Takada, 'Microplastic fragments and microbeads in digestive tracts of planktivorous fish from urban coastal waters' in Scientific Reports 6, Article number 34351, 30 September 2016.

[5] A.A. de Souza Machado, et al. 'Microplastics as an emerging threat to terrestrial ecosystems', in: Global Change Biology, 2017.

[6] F. Gallo et al. 'Marine litter plastics and microplastics and their toxic chemicals components: the need for urgent preventive measures', in: Environmental Sciences Europe, 30 (2018). Published 18 April 2018.