

# Microplastic restriction in the EU

05.11.2021 By: Sonia Antkowiak



Since microplastics are a major environmental problem, the EU is currently preparing to introduce legal restrictions. The cosmetics industry is affected to a considerable extent. Sonia Antkowiak knows the problems to be expected and the first reactions to them.

Microplastics are small pieces of plastic, typically smaller than 5mm, which are considered persistent and universal pollutants affecting oceans and seas. They are solid particles composed of mixtures of polymers and functional additives. Microplastics are associated with long-term permanence in the environment due to resistant and difficult (bio)degradation, which contributes to permanent and irreversible pollution of the marine environment. They can harm ecosystems and can be consumed by sea-life affecting the food chains.

## Into the environment

The two main pathways have been established for microplastics getting released to the environment. They can be unintentionally formed when larger articles disintegrate, wear away or break into fragments, like car tyres, synthetic textiles, and plastic litter. These are called 'secondary' microplastics and their release is estimated to be around 176,000 tonnes a year to the European surface waters. Additionally, microplastics are also deliberately manufactured and added to products like fertilisers, coated seeds, paints, cleaning, and laundry products as well as cosmetics. They are referred to as 'intentionally added' or 'primary' microplastics and it is estimated that each year around 42,000 tonnes of this type of microplastics end up in the marine ecosystems. Irrespective of their source, their release to the environment should be reduced and controlled.

## ECHA's Microplastics Restriction

In January 2019, the European Chemicals Agency (ECHA) decided to face the problem and to restrict intentionally added microplastics. Even though the idea behind the restriction proposal is noble and necessary, from the cosmetic industry's perspective, the ECHA's approach itself is surprising and disproportionate in its effects.

Based on the report prepared by the International Union for Conservation of Nature (IUCN), estimated microplastics releases are due to:

- firstly, the laundry of synthetic textiles (34.8%),
- secondly, the erosion of tyres while driving (28.3%) and
- thirdly, the city dust (24.2%)

When combined, these sources contribute to over 85% of releases but they are not covered by the agency's restrictions. The reason is that the restriction proposal does not include microplastics formed in the environment (the 'secondary' microplastics) but focuses only on intentionally added microplastics. This approach narrows down the release sources so much that it does not fully address the problem, not to mention solving it.

## Issues with the definition

Surprisingly, the microplastic definition proposed by the ECHA does not refer to any plastic materials. Therefore, many polymers and non-plastic substances used in cosmetic products, which are not affecting the environment and are not part of the plastic pollution, might fall under the scope of any future restriction. In other words: the concept of polymers as used in the ECHA restriction proposal is wider than the concept of plastics as all plastics are polymers, but not all polymers are plastics.

What is more, the microplastic definition is so broad that it becomes hard to interpret. Many exemptions and conditions were indicated by the ECHA, which are not very straightforward and depend on specific conditions. A decision tree is necessary to understand if a specific ingredient could be considered a microplastic or not.

Additionally, the agency indicated a list of 520 polymers that may fall into the scope of the restriction. However, the list was created based on the ingredients' INCI name. Many raw materials can have the same INCI name but different properties, which are crucial to determine whether an ingredient can be considered a microplastic according to the specific properties and requirements from the proposed definition.

Due to that, it is challenging to evaluate which ingredients may or may not be restricted, having the same INCI name. Accordingly, a final list of ingredients that will be included in the restriction will never be created. The burden of correctly interpreting the definition and identifying microplastics in the raw materials will lie with the cosmetic companies.

Considering the restriction's scale and its impact on many industries, it is controversial to base any new legislation on such a broad and confusing definition.

## Importance of these ingredients

Many synthetic polymers have key functions in cosmetic products, without which the products cannot be manufactured, or which give the cosmetics some unique properties. They are used as film-forming ingredients, emulsifiers, thickeners and opacifying agents. They stabilise UV filters and fragrances and allow the sorption of active ingredients like vitamins and oils, amongst others.

They can be found in all types of products, from toothpaste, shaving creams, make-up and skincare products to hairstyling and shampoos. The proportion of polymers in a cosmetic formula can be as high as 90%, depending on the function it performs. Moreover, polymers are often mixtures of several substances and not individual components.

Therefore, there is no simple one-to-one substitution of such ingredients, and the entire base of the formulation will need to be reevaluated. The reformulation process would be long, complex, and expensive. What is more; contrary to the situations where innovation builds on an existing base with historical market experience, in the case of microplastics reformulations, there will be no historical experience to be reused in the assessment.

## Red Flags

Several aspects of the restriction proposal itself were noted by the cosmetic industry as red flags. The main concern is the lack of proportionality in the ECHA's proposal with respect to individual industries. In its dossier, the ECHA has estimated the emissions of microplastics into the environment from specific industries and different types of products. Additionally, the agency has estimated the costs of reformulating the products to be borne by individual industries. The proposal states that 79.3% of the costs of the overall restriction (i.e., the costs of the restriction for all implicated sectors) will be borne by leave-on cosmetics products, yet, as the ECHA proposal states, leave-on cosmetics are estimated to be 2% of the overall emissions of intentionally added microplastics. It is completely disproportionate given their minor contribution to primary microplastics emissions.

Moreover, the dossier underestimates elements related to reformulation capacity by the cosmetic companies. The industry has repeatedly reported a lack of available alternatives for crucial polymers in leave-on products, which is a key factor as to whether a product can be reformulated or not. As mentioned before, a vast group of synthetic polymers in cosmetics are essential functional substances like emulsifiers, stabilisers, or thickeners, without which certain products could not be made. They ensure that personal care products are easy to apply and offer the desired quality, which is crucial for leave-on products. As Cosmetics Europe has consistently stated, there are no known alternatives for many critical functions.

The industry also does not agree with estimated timeframes to reformulate affected products assumed by the agency. Firstly, many alternatives will not be available immediately. Raw material suppliers need time to develop and produce new alternatives. Secondly, cosmetic manufacturers need time to work on how to formulate these new materials. A typical reformulation process lasts for 4.5 years on average, only if suitable alternatives are available. Finally, the proposed restriction forces companies to reformulate thousands of formulas at the same time. According

to Cosmetics Europe, given the complexity of leave-on formulations, the lack of suitable alternatives and the complex, costly and lengthy reformulation process, the transition periods proposed by the ECHA are unrealistic to meet by the industry.

ECHA's assumptions regarding small and medium-sized enterprises (SMEs) should also be challenged. ECHA's dossier states that SMEs "tend to specialise in natural and organic cosmetics" which is not the case. Cosmetics Europe's current estimate is that only around 7% of SMEs in its membership focus only on niche organic and natural products. The restriction in its proposed format will result in a severe socio-economic burden on the personal care industry, resulting in an impact on competitiveness, jobs, and growth of the sector and on consumer choice, for a very limited benefit to the environment.

## **Cosmetic industry fought back**

Over the past two years, the industry has been actively engaging in the legislation process and challenging ECHA's dossier by providing substantive evidence, scientific data as well as socio-economics analysis representative of the current status of the European cosmetic market. The industry asked for definition modification, derogation of different product types, the extension of the transitional periods for leave-on products, amongst others, but most importantly for a coherent approach across industry sectors when assessing their actual impact on the plastic pollution problem.

Early this year the Committee for Risk Assessment (RAC) and the Committee for Socio-economic Analysis (SEAC) has published a consolidated, joint opinion on microplastic restriction proposal, which will be considered by the European Commission and all the EU member states under the scrutiny of the Council and the European Parliament. This opens the last stage of the legislative work schedule, which may still change, provides for the publication of new regulations in 2022.

## **'Bad guy' cosmetic industry?**

When we focus only on primary microplastics released to the ocean at a global scale, leave-on cosmetics contribute for 2% and rinse-off products for 11.1% of the releases, according to the ECHA's dossier. However, it is known that the personal care industry in Europe places a major emphasis on proactive self-regulatory initiatives.

In October 2015, several years before the ECHA's initiative, Cosmetics Europe recommended to its members to discontinue, by 2020, the use of microbeads, a synthetic, solid, non-biodegradable, plastic particles used for exfoliating and cleansing purposes in rinse-off products. As a result, an impressive decrease of 97.6% in the use of plastic microbeads was noted in wash-off cosmetics and personal care products, between 2012 and 2017.

Taking that into account, an obvious question arises: does it make sense to restrict microplastics used as cosmetic ingredients? Self-regulation on rinse-off products works well, the environmental impact from leave-on cosmetics is low, the restriction itself will not solve the main problem, and the cosmetic industry will have to cover nearly 80% of the costs of the overall restriction from all implicated sectors. This ban will turn the whole industry upside down. Yet, the resulting beneficial impact

on the environment will be minuscule. We are left with a disturbing thought - is the cosmetic industry really a 'bad guy' or rather a 'scapegoat'?

## References

1. Annex XV Restriction Report, Intentionally Added Microplastics, European Chemicals Agency (ECHA), version 1.2, 22 August 2019
2. Annex to Annex XV Restriction Report, Intentionally Added Microplastics, European Chemicals Agency (ECHA), version 1.2, 22 August 2019
3. Restriction proposal on intentionally added microplastics – questions and answers, European Chemicals Agency (ECHA), December 2020
4. Boucher, J. and Friot D. (2017). Primary Microplastics in the Oceans: A Global Evaluation of Sources. Gland, Switzerland: IUCN. 43pp
5. Committee for Risk Assessment (RAC), Committee for Socio-economic Analysis (SEAC), Annex to Background Document to the Opinion on the Annex XV dossier proposing restrictions on intentionally added microplastics, Revision n. 5, 10 December 2020
6. Gouin et al, 2015, "Use of Micro-Plastic Beads in Cosmetic Products in Europe and Their Estimated Emission to the North Sea Environment"
7. Cosmetics Europe Recommendation on Solid Plastic Particles (Plastic Micro Particles), 21/10/2015
8. Plastics Strategy and Cosmetics. Report of the Polish Union of the Cosmetics Industry, Deloitte Advisory, Warsaw, September 2019
9. Environmental Sustainability: The European Cosmetics Industry's Contribution 2017-2019, Cosmetic Europe
10. Socio-Economic Contribution of the European Cosmetics Industry 2018, Cosmetic Europe



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