

**EXECUTIVE SUMMARY
& KEY FINDINGS**

PLASTIC

THE HIDDEN BEAUTY INGREDIENT

An analysis of the use of microplastics in personal care products and the upcoming legislation covering intentionally added plastics



Each year about 3800 tonnes of microplastics are released into the environment through the use of everyday cosmetics and care products in Europe¹. This is an estimation the European Chemicals Agency (ECHA) made after the European Commission (EC) requested them to submit a proposal for restricting intentionally added microplastics in certain products. The European Union (EU) wants to restrict intentionally added microplastics in products such as cosmetics that pose a potential risk to the environment and to human health. This restriction is on the horizon and is expected to be adopted by the end of 2022.

A central focus of ECHA's restriction proposal for the EC is to establish a definition of microplastics. Unfortunately, ECHA's proposed definition of microplastics is limited and has various loopholes, corresponding with industry lobbying positions. The current proposed definition excludes nanoplastics, water-soluble, liquid, and biodegradable polymers. Therefore, we believe that ECHA's figures (of microplastics released into the environment every year through cosmetics) have been thoroughly underestimated. Moreover, if a synthetic polymer has been exempted from the proposed restriction

on microplastics, it doesn't mean that it has been proven to be safe. We want to take this report as an opportunity to present a science-based review explaining why these exempted polymers could potentially also cause adverse environmental and human health impacts.

With so many synthetic polymers exempted, the aim of the proposed restriction would be undermined. We want to stress the need for adopting the precautionary principle for all synthetic polymer groups when developing new regulatory measures. The unjustified delays because of the transition periods granted to the cosmetics industry could potentially allow pollution to continue for up to 8 years. What's more, an inadequate piece of legislation gives the cosmetics industry the opportunity to work around restrictions and continue their reliance on synthetic polymers. By overlooking these consequential drawbacks, the European Commission might also be undermining its own goal to make businesses accountable for their green claims.

To highlight this strong dependency of the



¹ ECHA. Combined Risk-Assessment Committee (RAC) and Socio-Economic Analysis Committee (SEAC)'s opinion on Annex XV dossier proposing restrictions on intentionally-added microplastics (2020, December 10). Helsinki: European Chemicals Agency. Accessed: February 2022. Available at: <https://echa.europa.eu/documents/10162/a513b793-dd84-d83a-9c06-e7a11580f366>.

cosmetics industry on plastic ingredients, we looked into the 10 most popular consumer brands of the 4 biggest cosmetic producers in Europe. The brands are L'Oréal Paris, Elvive/Elseve, Garnier, Nivea, Gillette, Oral-B, Head & Shoulders, Dove, Rexona, and Axe. We examined their product level information via citizen science efforts from the Beat the Microbead app users. We also evaluated public commitments made by the brands and their producers, as well as their policies on tackling the microplastic menace. Furthermore, we reached out to the producers of these brands to gain information on any future plans on removing plastics from inside their products.

This report provides a comprehensive analysis of the proposed definition of microplastics and its shortcomings. In particular, we demonstrate that if this definition is adopted as proposed by ECHA, it will have regrettable consequences. From the responses that we received from the 4 cosmetic producers, we observed that they hide behind ECHA's proposed definition to keep using microplastics that are derogated. Consequently, the measures that these producers take to tackle the microplastics in their products do not go far enough, which will result in

continuous releases of synthetic polymers from their products. We believe not only that the cosmetics industry could take advantage of this situation by using deceiving green claims (because preventing microplastic pollution wouldn't be ensured), but also that consumers would find it even harder to make conscious decisions in choosing microplastic-free products.

With this report we aim to invite the EC and the EU member states to close the loopholes and take the opportunity to deal with all intentionally added microplastics once and for all. We want to urge the cosmetics industry to look beyond the proposed definition by ECHA, to ensure the environmental and human health safety of the products they bring on the market. We want to encourage consumers to demand transparency from brands and accountability for the ingredients these brands put into our personal care and cosmetic products.

9 out of 10 products contain microplastics

From the 10 popular brands registered in our database whose products we analysed (7.704 in total), we found that 9 out of 10 products contain microplastics according to our traffic light system to categorise products (see chapter 3). More precisely, microplastics accounted for 87% of the products. Our personal care and cosmetic products are riddled with plastic ingredients.

The exemptions are undermining the purpose

The stakes are high for an EU-wide initiative to take essential measures that will control a large amount of unnecessary microplastics. The proposed definition of microplastics under ECHA's restriction proposal contains a number of derogations. With their current restriction proposal, ECHA aims to address the environmental and human health risks posed by microplastics. By exempting engineered nanoplastics, water-soluble, liquid and

biodegradable polymers in their proposal, we argue that ECHA undermines the purpose of its own proposal.

Why scientists are worried about the exemptions

• Water-soluble polymers (WSPs), liquid & semi-solid polymers:

WSPs are presumed to be present in the environment based on their production volumes and high potential for environmental discharge. Their distribution, concentrations, and impact are unfortunately still highly unclear². Moreover, little is known about the degradation products of many WSPs, and their persistency and toxicity. In addition, the use of liquid, semi-solid and water-soluble plastics in cosmetic products greatly exceeds that of solid plastics³. A commonly used liquid polymer in cosmetics (dimethicone) has been identified as a potential risk to the environment^{4,5}. This illustrates that these polymers should not be presumed benign.

• Engineered nanoplastics:

Nanoplastics can easily cross biological barriers and exert toxic effects, even more so than microplastics⁶.

• Biodegradable polymers:

Real-world conditions are poorly reflected in current standardised tests to assess the biodegradation of biodegradable polymers. Consequently, biodegradable plastics can still persist in the environment⁷. Additionally, various concerns about their toxicity exist⁸.

Only 1 out of 10 brands mention microplastics*

• Looking closer at sustainability plans

and the public commitments of the popular consumer brands, as well as their response to our letter (see Annex III), it became evident that not enough is being done to address the microplastics pollution caused by the personal care and cosmetic products of these brands.

² Huppertsberg, S., Zahn, D., Pauelsen, F., Reemtsma, T. & Knepper, T. P. Making waves: Water-soluble polymers in the aquatic environment: An overlooked class of synthetic polymers? *Water Research* 181, (2020).

³ Fraunhofer Institut für Umwelt Sicherheits und Energietechnik Umsicht. *Microplastik und Synthetische Polymere in Kosmetikprodukten Sowie Wasch-, Putz- und Reinigungsmitteln.* (2018).

⁴ Nendza, M. 'Hazard assessment of silicone oils (polydimethylsiloxanes, PDMS) used in antifouling-/foul-release-products in the marine environment' (2007). In *Marine Pollution Bulletin* 54, 1190–1196.

⁵ Dhanirama, D., Gronow, J. & Voulvoulis, N. 'Cosmetics as a potential source of environmental contamination in the UK' (2012). In *Environmental Technology (United Kingdom)* 33, 1597–1608.

⁶ Yong, C. Q. Y., et al. 'Toxicity of microplastics and nanoplastics in Mammalian systems' (2020). In *International Journal of Environmental Research and Public Health* vol. 17.

⁷ Haider, T. P., et al. 'Plastics of the Future? The Impact of Biodegradable Polymers on the Environment and on Society' (2019). In *Angewandte Chemie - International Edition* vol. 58, 50–62.

⁸ Zimmermann, L., Dombrowski, A., Völker, C. & Wagner, M. 'Are bioplastics and plant-based materials safer than conventional plastics? In vitro toxicity and chemical composition' (2020). In *Environment International* Volume 145, 106066.

*Redaction 05/2022: As a result of reassessment of the table on page 34, we came to a conclusion that only 1 out of 10 brands (Nivea) mention the word microplastics in their public sustainability plans. For detailed explanation, please see page 58.

KEY findings

- **Only 1 (Nivea) out of 10 brands** made a direct mention of the term 'microplastics' in their public plans. At the parent company level, only Beiersdorf and Unilever (2 out of 4) have public plans on tackling microplastics. Their understanding of microplastics is limited to solid, insoluble particles of plastic smaller than 5mm.*
- **There is a clear need for more sincere actions** to fight microplastic pollution arising from the content of these products. The cosmetics industry is already defending their use of WSPs, liquid and biodegradable polymers with the current restriction proposal by ECHA. They argue that the synthetic polymers in their products are not microplastics according to the definition in ECHA's proposal and hence do not pose a threat to the environment.

Plenty of opportunities for greenwashing

By adhering to ECHA's current proposal, which excludes engineered nanoplastics and soluble, liquid, semi-solid and biodegradable polymers, the cosmetics industry would still be able to use plastics in nano, soluble, liquid, and biodegradable form. However, the environmental safety of these ingredients cannot be guaranteed, and any green claims may therefore be false. If the upcoming legislation adopts the definition and

derogations proposed by ECHA, it may enable the cosmetics industry to make misleading claims and advertisements, such as 'microplastic-free' and 'biodegradable ingredients'. It will leave more room for greenwashing to be rampant, which would leave consumers even more confused.

A future-proof legislation is key

With so many unknowns and potential risks for environmental and human health, we call upon the European Commission to adopt the precautionary principle and include engineered nanoplastics, water-soluble, liquid, semi-solid and biodegradable polymers in their restriction proposal. The coming years will be crucial for creating a future-proof restriction on microplastics that potentially pose a risk to the environment and to human health.

The European consumer market is one of the biggest in the world. European laws will influence markets around the world. A strict EU law that bans all intentionally added microplastics hazardous to environmental and human health will have a far-reaching impact on the global fight against the microplastics menace.



About THE PLASTIC SOUP FOUNDATION

DISCLAIMER

The information in this report has been obtained in good faith from sources that are believed to be reliable. We accumulated the product level data via the Beat the Microbead app users. We requested input on this data, the perspective and policy on microplastics from the brand owners involved. The text of this report is composed with utmost care and reflects the interpretation and opinion of Plastic Soup Foundation on the date of publication of this report. However, Plastic Soup Foundation cannot exclude and cannot be held liable whatsoever for any inaccuracies or incompleteness of the data or this report

PUBLISHED BY THE PLASTIC SOUP FOUNDATION

The Plastic Soup Foundation was founded in February 2011. Our goal is to make the general public and other stakeholders familiar with the phenomenon of “plastic soup” and to stop it at its source. As long as the supply of plastic to our rivers, seas and oceans is not stopped, it’s like trying to empty the ocean with a thimble. We are a single-issue organisation, focused entirely on plastics. With a committed and passionate team of about thirty people, we do our utmost to achieve our goal: no plastic in our water or our bodies!

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