

DATABOOK
2024

MICROPLASTICS

IN COSMETICS

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They are part of the long list of controversial cosmetic ingredients... A huge number of microplastics are in danger of being banned, or severely restricted, in cosmetic products. And it is not the risk they would pose to health (as covered by the Cosmetics Regulation 1223/2009) that puts them at risk, but their potential to harm the environment (notably under the REACH Regulation) when they are released into the wastewater circuit, and ultimately into natural aquatic environments. Which ones are concerned? Within what timeframe? From the first alerts to eviction strategies and regulatory evolutions towards restrictions, CosmeticOBS gathers in this databook all its articles to understand and manage the anti-plastic wave, which is sweeping over formulas as well as cosmetic packaging.



The indictment



POLYETHYLENE, THE LITTLE BEAD... THAT TRAPPED THE MICROPLASTICS

This cosmetic ingredient has been present in many formulations for a long time, and has been acclaimed for its softness on the skin and its low cost as much as for its exfoliating and film-forming properties. But its interesting plastic form has given way to its polluting plastic, especially for marine environments, bringing with it all microplastics. Which are getting more and more bad buzz, and are now targeted also by regulations.

Polyethylene is a thermoplastic resin that is widely used all around the world because it is one of the cheapest and easiest polymers to synthesize.

It is derived from the petrochemical industry and exhibits very high stability, which provides it with a good impact strength and chemical resistance.

There are several types of polyethylene, including LDPE and HDPE homopolymers, and copolymers: LLDPE plastomers, for example.

HDPE is mainly used in stiff goods (detergent or cosmetics jars, bottles, food containers, jerry cans, car tanks, etc.), while LDPE is found in soft goods (plastic bags, films, packets and small bags, flexible containers, etc.).

Polyethylene is also a food additive (E914).

Polyethylene, a cosmetic ingredient

Polyethylene is listed in the International Nomenclature of Cosmetic Ingredients under number CAS 9002-88-4, with three main functions: exfoliating agent, film-forming agent, and viscosity control agent.

It is incorporated in formulas in the form of microbeads between 0.1 and 1 millimetre which offer many advantages for formulators: easily available, cheap, white, and odourless, they are completely inert and do not interfere with the other cosmetic ingredients.

Gentle for the skin

Polyethylene can thus be used for multiple applications and it has long been found in thousands of products belonging to almost all cosmetic categories, from cleansers (soaps, facial and body gels, toothpaste...) to skincare products (facial creams, eye contours, lip balms...), and makeup (lipsticks, foundation, mascaras...).

It was also present in a lot of body and face scrubs. Its microbeads are known for being perfectly spherical and devoid of any potentially aggressive micro-edges (unlike the plant-derived exfoliating powders obtained from fruit kernels or shells), and they have long been described as the softest and most respectful for the skin.

Safe for human health

Its use further increased when polyethylene was deemed safe for use. A **study published in 2014 by the German Federal Institute for Risk Assessment** (BfR) has concluded that it is completely safe for human health, even in case of dermal absorption or unintentional oral ingestion of polyethylene microplastic particles from cosmetic products.