UN environment programme

Assessment Report on Issues of Concern

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INTENTIONALLY ADDED MICROPLASTICS in PRODUCTS

1. Sources

Microplastics are solid particles made of synthetic polymers, typically defined as smaller than 5 mm. Microplastics have been intentionally added to a wide range of products and application areas for diverse technical functions. For example, they are added in cosmetics and personal care products, detergents and maintenance products, agriculture and horticulture, medical devices and in vitro diagnostic medical devices, medicinal products for human and veterinary use, food supplements, paints, coatings and inks, oil and gas drilling and production, plastics, technical ceramics, media for abrasive blasting, adhesives, 3D printing materials and printing inks.

2. Why is it relevant?

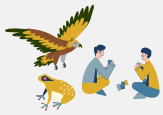
The Global Chemicals Outlook-II has identified microplastics in personal care products and cosmetics as an issue with emerging evidence of risks to the environment.

Some adverse short- and long-term effects of microplastics have been observed in laboratory studies.

However, current levels of environmental occurrence or human exposure (e.g. via drinking water, seafood) to microplastics are generally still low.

The continuous release of microplastics will result in environmental accumulation, due to their high persistence in the environment and biota, and thus may result in certain adverse effects on the environment and/or human health in the long term.

There are uncertainties due to limited evidence on certain aspects of the risks of microplastics, particularly toxicological and epidemiological, especially as pertains to nano-sized plastic particles.



Due to their small size, microplastic particles are readily available for ingestion and potentially liable to transfer within food chains from prey to predator.

Microplastic ingestion may also be relevant for elevated exposure to intentional additives, such as plasticizers and flame retardants.

Releases can occur through various pathways, depending on the uses, principally via wastewater and/or municipal solid waste.

Their small size makes microplastics practically impossible to remove from the environment after release, and many microplastics may transport to far distances in water or by wind.

Wastewater treatment processes in the Global North can nearly completely (84–99.9%) remove microplastics in wastewater, most of which ends up in sludge (or waste solids).

Microplastics are resistant to environmental degradation and when they do (bio)degrade in the environment, they progressively fragment theoretically becoming “nanoplastics” before further breaking down.

Current exposure to intentionally added microplastics is complex and information in the public domain is limited. Furthermore, data on releases are mostly focusing on specific cosmetics and personal care products.

For more detailed information on microplastics, please see Chapter 4.6 of the ***Assessment Report on Issues of Concern*** and Part B, Chapter 6 of the ***Annexes to the Assessment Report on Issues of Concern***. Available on the UNEP website.

3. Existing instruments and actions

To date, different instruments and actions have been taken and are being developed by many countries and stakeholders to address intentionally added microplastics.

Most of them have focused on rinse-off products. In particular, legally binding bans have been adopted by a number of countries.

Voluntary phase out of rinse-off products has taken place (e.g., by multinational companies or industry associations) and voluntary actions through third-party standards and verification schemes have been taken.

See Annexes for more

4. Challenges and opportunities

Microplastics are ubiquitous in the environment and come from many different sources. Continuous use and releases of microplastics will result in increasing accumulation of microplastics in the environment and thus increasing exposure and risks.

The current level of action is not yet adequate for addressing sound management of intentionally added microplastics.

The current actions to ban microplastics in rinse-off products need to be expanded to cover those countries and regions that have taken no action, and other intentional uses of microplastics.

In particular, future actions addressing intentionally added microplastics need to start from the product design phase, to avoid the need for monitoring and clean-up in later life-cycle stages if possible at all.

It may be worthwhile to first have an international discussion on a common definition of "microplastics."

Other sources such as microplastics formed unintentionally during the production and processing of larger plastics and secondary microplastics that are a result of progressive plastic degradation need to be properly addressed, possibly in the larger context of addressing plastics overall.

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