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# Plastics Industry Association Microplastics Position Statement

## Introduction

While research on microplastics has expanded in recent years, substantial gaps remain in understanding their characteristics, sources, environmental fate, and potential health effects. These include how to detect and quantify them, trace their movement through environmental media, and assess actual exposure levels and potential risks. The global plastics and chemical industries are contributing to the scientific knowledge base by supporting credible research and advocating for policies grounded in evidence and feasibility[1]. The Plastics Industry Association (PLASTICS) aligns with the WHO's position that further research is needed[2] and is leading initiatives to reduce plastic waste and prevent its entry into the environment (see "**PLASTICS' Leadership in Addressing Plastic Waste"** below).

## What are Microplastics?

Definitions of microplastics vary but typically focus on particle size, often without sufficient consideration of composition or analytical feasibility. PLASTICS supports refining these definitions to align with evolving detection technologies and meaningful distinctions in composition and behavior. The most commonly cited size range for microplastics is 5 millimeters (mm) down to 1 nanometer (nm).[3] The International Organization for Standardization (ISO) further classifies "large microplastics" as 1-5 mm and "microplastics" as 1 micrometer (um) to 1 mm[4]. Consistent and technically grounded definitions are critical to ensure that policy decisions reflect science capability and material science.

Microplastics are generally described as belonging to one of two broad categories: primary and secondary microplastics. Primary microplastics are intentionally manufactured small particles, such as microbeads in personal care products or controlled-release fertilizers. Secondary microplastics, by contrast, result from the breakdown of larger plastic items through physical, chemical, and biological processes. These fragments can originate from a range of sources, including paint, tire wear, textiles, and geotextiles.[5]

## Environmental and Human Health

[1] https://plasticscircularity.org/microplastics/
[2] World Health Organization. *Dietary and inhalation exposure to nano- and microplastic particles and potential implications for human health*. (2022). https://www.who.int/publications/i/item/9789240054608.
[3] *Microplastics Research*. US EPA. (Apr. 22, 2022). https://www.epa.gov/water-research/microplastics-research.
[4] ISO 24187:2023 Principles for the analysis of microplastics present in the environment (Accessed July 22, 2025)
[5] European Commission. *Regulation of the European Parliament and of the Council.* (October 16. 2023). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023PC0645.

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Studies have reported the detection of microplastics in various environmental media, food sources, and human tissues. However, detection alone does not equate to demonstrated harm. The current scientific evidence is limited by a lack of standardized, validated methods for detecting, identifying, and quantifying microplastics across complex sample types, including complex foods[6], air samples[7], tissues[8], and others. These analytical challenges contribute to significant uncertainty about exposure levels, toxicological relevance, and potential health effects.

Leading scientific and regulatory agencies have reviewed the current evidence and generally conclude that the available data are insufficient to establish health risks from typical levels of microplastic exposure. These organizations consistently emphasize the need for more research, better methods, and improved data transparency.

- The World Health Organization (2022)[9]: "*Strengthening of the evidence necessary for reliable characterization and quantification of the risks to human health posed by NMP [nano- and micro-plastics] will require active participation by all stakeholders in developing and making available standard methods*"
- The US FDA (2024)[10]: "*While some studies suggest there may be impacts to human health from exposure to microplastics and nanoplastics, the overall scientific evidence does not demonstrate that levels of microplastics or nanoplastics found in foods pose a risk to human health*"
- The German Federal Institute for Risk Assessment (BfR, 2025)[11]: "*According to the current state of knowledge, there is no reliable toxicological evidence of health risks from the ingestion of microplastics via food.*"

**Steps to Address Microplastics must be Scientifically Informed and Evidence-Based**

Management of microplastics in the environment must be based on an understanding of the particle itself (e.g. size, composition) as well as interactions with the environment (e.g. source

[6] Duncan et al. 2024. (Analytical Chemistry) *Regulatory Science Perspective on the Analysis of Microplastics and Nanoplastics in Human Food*
[7] World Health Organization. *Dietary and inhalation exposure to nano- and microplastic particles and potential implications for human health*. (2022). https://www.who.int/publications/i/item/9789240054608.
[8] Xu et al. 2025 (Nature) *Are microplastics bad for your health? More rigorous science is needed*
[9] World Health Organization. *Dietary and inhalation exposure to nano- and microplastic particles and potential implications for human health*. (2022). https://www.who.int/publications/i/item/9789240054608.
[10] US Food and Drug Administration. *Microplastics and Nanoplastics in Foods* (current as of 7/24/2024; accessed 7/23/2025).
[11] German Federal Institute for Risk Assessment (2025) *Microplastics in the brain? BfR evaluates new study - so far no evidence of health risks*

apportionment, movement into and through different media). As the ability to scientifically evaluate these critical aspects continue to emerge, PLASTICS is focused on pursuing solutions to keep plastic waste out of the environment. Effective microplastics management begins with keeping plastic waste out of the environment. PLASTICS supports federal policies that create uniform standards for recycling and waste management infrastructure, including both mechanical and advanced recycling systems. PLASTICS also supports science-based policy, federal and state level legislation appropriating funds for additional research on the topic, better coordination between agencies to share data and resources, and evidence-based solutions supported by practical policies.

**PLASTICS' Leadership in Addressing Plastic Waste**

To prevent loss of preproduction plastic resin like pellets, flake, and powder to the environment, Operation Clean Sweep (OCS)[12] was founded by PLASTICS in 1991 and is operated today in partnership with the American Chemistry Council (ACC). OCS is the world's largest stewardship program to prevent loss of preproduction plastic to the environment with more than 5,000 members in 65+ countries. OCS has launched a facility-level verification program to empower the plastics value chain to verify that 25+ strategies to prevent loss of pellets, flake, and powder have been successfully implemented in operations. PLASTICS continues to drive OCS effectiveness by providing program enhancements and expanding best practices through the supply chain: launched OCS Blue[13], the most robust tier of OCS (available in the United States) and the new OCS Logistics[14] program which expands best practices in pellet loss prevention to trucking companies, transloading companies, distributors, warehouses, and service providers.

PLASTICS has also launched the Flexible Film Recycling Alliance (FFRA) to advance the recovery of flexible plastic films by expanding recycling access, driving end-market development, and increasing consumer and industry education. To raise awareness of work the plastic recycling industry is doing, PLASTICS created the Recycling is Real campaign to further connect with stakeholders. The plastics industry is committed to sustainability and ensuring plastic material remains in our circular economy and out of the environment. This campaign promotes organizations across the United States who are recycling plastic and investing in our circular economy. PLASTICS' leadership is based around the principle of keeping plastic within the circular

[12] Home - Operation Clean Sweep
[13] OCS Blue - Operation Clean Sweep
[14] Operation Clean Sweep Announces OCS Logistics Verification Program - Operation Clean Sweep

economy by preventing resource loss at various stages of the plastic life cycle and promoting the organizations taking these steps.

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