

## Microplastics

Small pieces. Big questions. Science-based answers.

### What are Microplastics?

Microplastics are small plastic particles typically defined by their size, shape, composition, and source. While there is **no single globally accepted definition**, most scientific and regulatory frameworks describe microplastics as plastic particles **smaller than 5 millimeters**. The International Organization for Standardization (ISO) further categorizes these materials into “large microplastics” (1–5 mm) and “microplastics” (smaller than 1 mm).

Scientific understanding continues to evolve, and differences in methodology and measurement contribute to variability across studies. Advancing standardized, well-funded research is essential to improving consistency, strengthening the evidence base, and informing effective decision-making.



For reference, the head of a pushpin is around 5 mm (5,000 μm).



### Sources of Microplastics

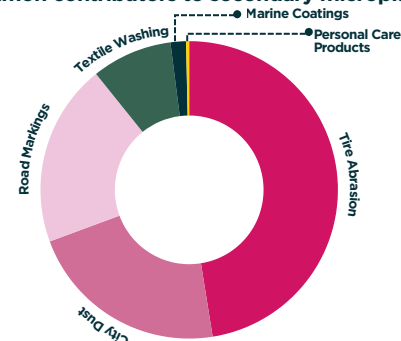
Microplastics are commonly categorized by **source**, based on whether particles are intentionally manufactured at small sizes or generated unintentionally through the wear and degradation of larger plastic containing products.

Evidence from life-cycle and environmental studies indicates that **most microplastic loss occurs during the use phase**, rather than at end of life.

**Primary microplastics** are manufactured intentionally at small sizes for specific applications.

**Secondary microplastics** result from the physical wear, weathering, or degradation of larger plastic products over time.

### Common contributors to secondary microplastics



### Environmental Presence & Human Health

Microplastics have been detected in environmental media, food, and human tissues.

**Importantly, detection does not imply harm.**

- ✓ The **World Health Organization** has emphasized the need for stronger, standardized research methods to reliably assess potential health risks.
- ✓ The **U.S. Food and Drug Administration** has stated that current 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** has concluded that, based on current knowledge, there is no reliable toxicological evidence of health risks from ingesting microplastics through food.
- ✓ The **European Food Safety Authority** has noted that study methods overestimated of microplastic presence and risk, underscoring the need for standardized approaches.

### Reducing Microplastics through Prevention & Systems

Effective microplastics management begins with an understanding of the waste hierarchy and the implementation of solutions at each level to prevent plastic waste from entering the environment. This includes the following:

- ✓ **Science-based policy, research, and standardized analytical methods** to improve understanding of exposure, risk, and effective interventions.
- ✓ **Strong, uniform waste management and recycling systems**, supported by investment in modern recycling technologies, including mechanical, organic, and advanced recycling.
- ✓ **Preventative measures across the supply chain**, such as Operation Clean Sweep®, including pellet containment and spill response practices to reduce resin loss during manufacturing and transport.
- ✓ **Keeping plastic materials in a circular economy** through reuse, recycling, and recovery to minimize environmental loss.

More than one million Americans work in jobs directly or indirectly connected to the plastics industry, spanning a wide range of sectors. From the engineers who design the machinery that manufactures essential plastic products, to the material suppliers distributing raw plastics, to the processors shaping materials into goods, and the recyclers giving used plastic a second life, the plastics supply chain is a vital aspect within both the U.S. and global economy.