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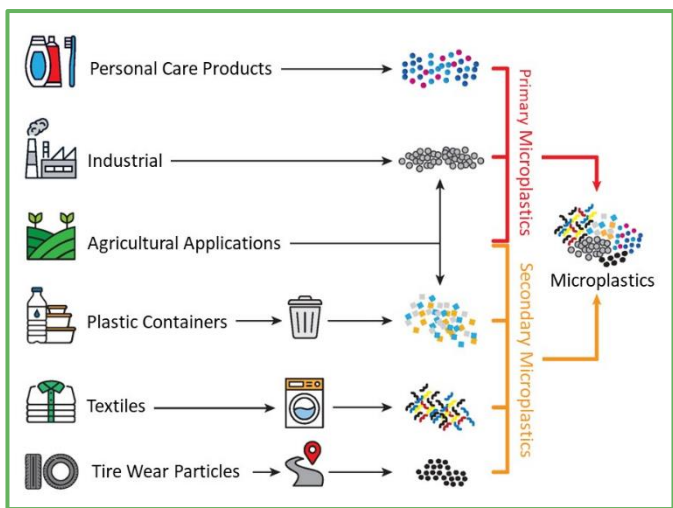
Types of Microplastics: Primary & Secondary

Primary Microplastics

Microplastics (<5 millimeters in size) are considered primary when intentionally designed for use in industrial, commercial, and personal care products (e.g., microbeads in lotions). They can enter the environment through spills or other releases during manufacturing or shipping, industrial process waste-stream management, and product use.

Secondary Microplastics

Secondary microplastics are generated through the physical, chemical, and biological breakdown of larger plastic products (e.g., water bottles, plastic bags/sheeting, road paint, synthetic fabrics, vehicle tires) into smaller pieces.



Primary and secondary microplastics and examples of associated sources.

Degradation

Plastic degradation (breakdown) processes are important in determining the fate (where plastic goes and how it might be changed in the process) and effects of microplastics on the environment. Breakdown processes include:

- chemical (e.g., photodegradation from the sun's ultraviolet radiation)
- thermal (heating/cooling)
- mechanical (e.g., washing synthetic fabrics, abrading tires on roads)
- biological (e.g., some microorganisms may consume plastic as an energy source)

Degradation times vary and depend on the shape, size, and chemical composition of the material. Degradation processes require specific conditions to be effective and rarely lead to complete destruction of plastic materials.

What Can We Do?

More can be done to prevent primary microplastics from entering the environment. Additional regulations on the use, storage, and transportation of primary microplastics can greatly reduce their release and contribution to environmental pollution. Additionally, more can be done to keep plastics from entering our environment and degrading into microplastics. For more information see the [Focus Sheet: Working with Decision-Makers to Address Microplastics Pollution and Exposure](#).

