

THE ENVIRONMENTAL IMPACT OF MICROPLASTICS

PART 2: MICROPLASTICS IN AIR

Air is a critical pathway for the transportation of microplastics. With their small size and low density, these particles can travel great distances and are found on mountain tops, arctic glaciers, and remote deserts. The degradation of plastic fibers produces fibrous microplastics that can be inhaled and potentially persist in the lungs, leading to long-term health effects.



Where Do They Come From?



- More than 60 million metric tons of plastic fibers are produced each year.
- Automotive tire abrasion may be responsible for 10% of PM2.5 in the air.
- Agricultural activities (biosolid application) and waste incineration are causes of microplastic dispersion.
- Sea spray releases large amounts of microplastics into our air.

How Do They Travel?



- Plastics can stay airborne for up to six and a half days.
- Microplastics can be transferred easily from water to air and back again within the water cycle.
- Microplastics can be found in snowfalls in the Alps and Arctic regions.
- It has been estimated that 22,000 tons of atmospheric microplastics are deposited across the US every year.

What Are Their Impacts?



- Research is underway to validate the biopersistence and accumulation of microplastics in the lungs
- One study reports an annual inhalation exposure average of 53,700 particles per person.
- Studies have shown that plastics and additives can lead to reproductive diseases, cancer, and mutagenicity.

WHAT CAN WE DO ABOUT MICROPLASTICS IN AIR?

Residential



- Increase biodegradability of goods
- Utilize sustainable plastic alternatives
- Reduce household waste
- Incorporate high performance air purification systems

Industrial



- Incorporation of recycled materials
- Research, develop, and use alternative materials
- Reduce amount of packaging material used
- Improve biodegradability of packaging

Government



- Create a more sustainable plastic life cycle
- Develop and enforce stringent microplastics regulations
- Support detection efforts to mitigate microplastics in the environment
- Research the environmental and human health impacts of microplastics