

THE ENVIRONMENTAL IMPACT OF MICROPLASTICS

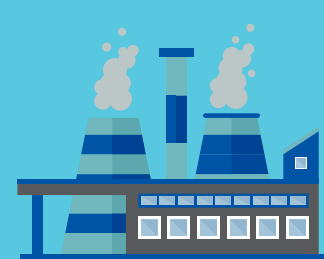
PART 1: MICROPLASTICS IN WATER

Each year, an estimated **9 million tons** of plastic enters our lakes, rivers and oceans from land-based sources. With a life span of up to **450 years**, these materials persist in the environment where they degrade into smaller pieces referred to as micro- and nanoparticles. These smaller plastic particles can be ingested by marine life and enter the food chain.



CREATION

CHALLENGES



- Only **3%** of all plastics used are recycled
- **8.3 Billion metric tons** of plastic waste are generated every year

SOLUTIONS

Smart Manufacturing

- Process optimization; increase use of recycled materials
- Classification of materials for recycling and disposal
- Specifications for Biodegradability and chemical degradation and disposal
- Alternative materials research and utilization
- Reduce amount of packaging material used

UTILIZATION

CHALLENGES



- **1 million plastic bottles** are purchased every minute
- **52%** of plastic waste is from packaging

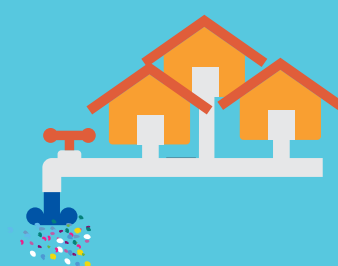
SOLUTIONS

Sustainable Packaging

- Improve biodegradability of packaging
- Reduce waste
- Encourage use of reusable containers, bags and packaging
- Increased use of recycled plastic in packaging materials

POLLUTION

CHALLENGES



- **9 million tons** of plastic enters oceans every year
- Plastic in the sea has a lifespan of up to **450 years**

SOLUTIONS

Regulations and Research

- Promote regulatory guidelines on reuse and recycling standards
- Investigate treatment and disposal alternatives
- Create a more sustainable plastic life cycle – reduce, reuse, recycle

INGESTION

CHALLENGES



- At least **800 species** affected worldwide
- Humans at risk of ingesting **5 grams** of plastic a week

SOLUTIONS

Vigilance and Investigation

- Maintain compliance with stringent and evolving regulatory guidelines
- Detection of microplastics in aquatic and human food chains
- Accurate detection and identification of microplastics in bottled water
- Identification and tracking of plastics in the environment

