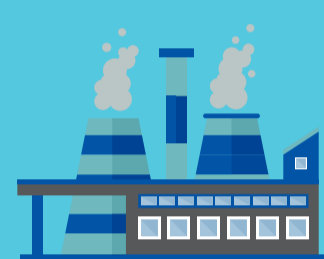# THE ENVIRONMENTAL
IMPACT OF MICROPLASTICS

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 metrics 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

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