



Microplastics in Water

Sampling and analysis

Microplastics in the environment are subject to intense research and studies reveal that they are present in products we use daily, for example, bottled water and cosmetics. Plastics degrade very slowly in the environment and the large amount of plastics in our water environment has led to an increased focus on the harmful effects to marine organisms.



What are Microplastics?

The definition of microplastics is small plastic particles **less than 5 mm**, with most microplastics being smaller than **1 mm**. Microplastics are very tiny pieces of manufactured plastic (microbeads) used as additives to health and beauty products. Plastic pellets that are used as raw material in the industry are unintentionally spread into the environment during transport and production. These particles are called primary particles. Microplastics can also derive from larger plastic debris that degrades into smaller and smaller pieces. These particles are called secondary particles.



What are the sources of Microplastics?

Studies show that important sources of microplastics in the sea are road wear and abrasion of tires, artificial turfs, plastic fibers from textiles and industrially produced plastic pellets. Health and beauty products which contain microbeads (for example toothpaste and soap) also contribute to the contamination.

Plastics that are disposed of in the environment instead of being recycled will eventually degrade into smaller plastic particles.

It is uncertain how much of the particles from road wear and artificial turfs are transported to water recipients. However, microplastics from health products and synthetic clothes fibers in washing machines enter the sea via the wastewater.



Microplastics in our water environment

Microplastics can be found both in the water and in the sediment. Plastics biodegrade very slowly and marine organisms such as mussels, oysters and fish may eat the particles. This can lead to starvation and even death. Additives in the plastic, for example, flame retardants, may be toxic to the marine organisms and individuals higher in the food chain.



Analysis of Microplastics at ALS

ALS has developed a method for analysis of microplastics in water. We degrade organic material before the analysis. The analysis is performed by **SEM (scanning electron microscope)** and particles between 10 μm and 1 mm can be identified (on request we are able to analyze particles as small as 1 μm).



Call us to arrange a laboratory tour or speak with one of our Project Managers to see how we can assist you on your testing requirements.

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