

Microplastics in Wastewater & Sewage Sludge

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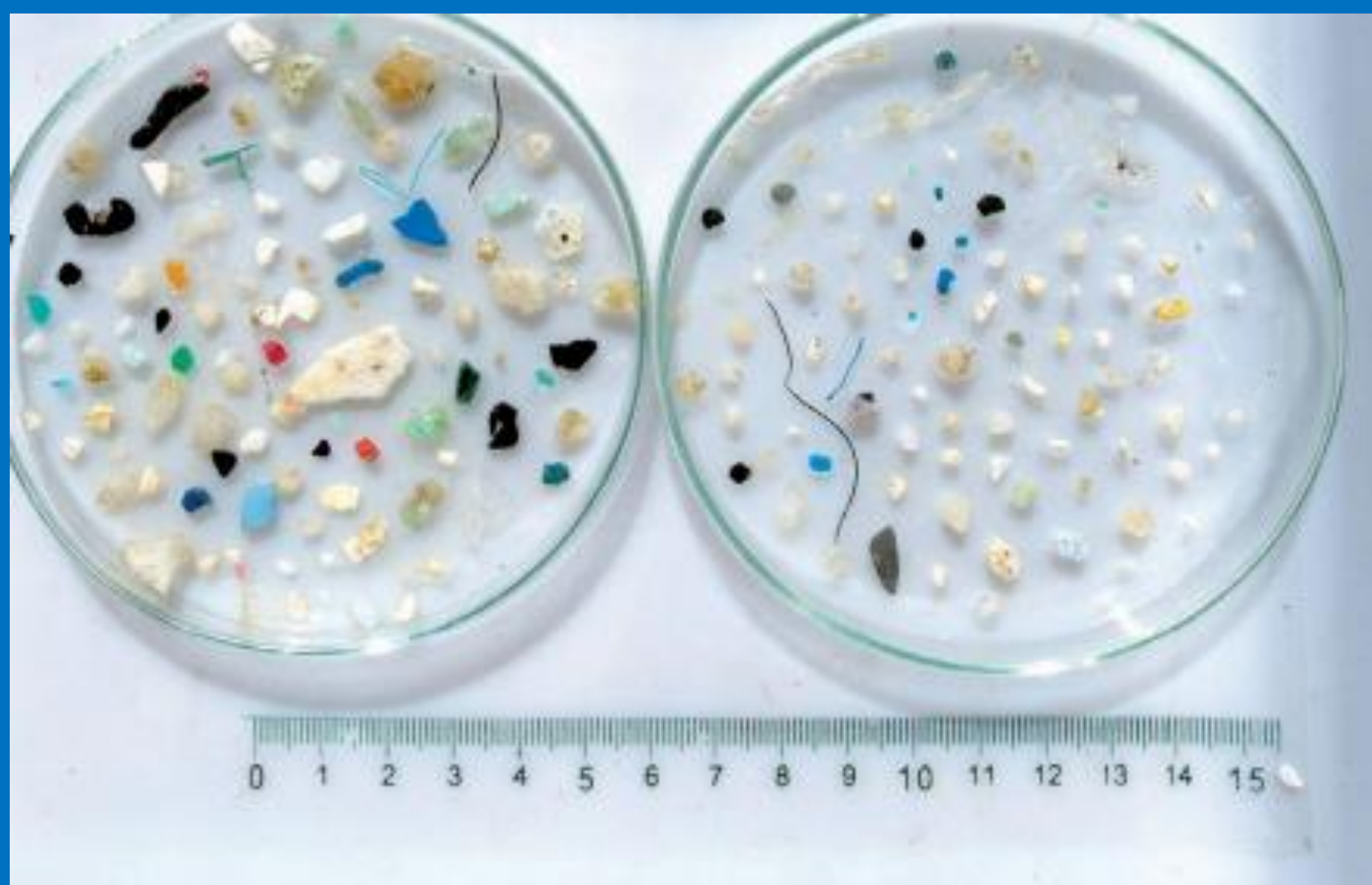
What are microplastics? – The not-so-simple question

Microplastics are not 'just' microplastics

'Microplastics' are a complex and diverse class of chemical contaminants with different characteristics and properties, and are composed of a variety of polymers and chemical additives.

Size Matters

Microplastics: 0.001 mm to < 1 mm
Large microplastics: 1 mm to < 5 mm



Where do microplastics come from?

Primary microplastics

Microplastics intentionally manufactured within size range, e.g. nurdles, microbeads, abrasive material used in industry, glitter.

Secondary microplastics

Microplastics formed from the break-up or fragmentation of larger plastics or plastic-containing items, e.g. fibres from textiles, particles from packaging, road markings, bottles, pipes etc.



Did you Know one item of clothing can release ~1,900 fibres/wash²? The number of fibres lost during a 6 kg load could be as high as 137,951 for polyester-cotton blend, 496,030 for polyester and 728,789 for acrylic³. These fibres wash down the drain and end up in wastewater.

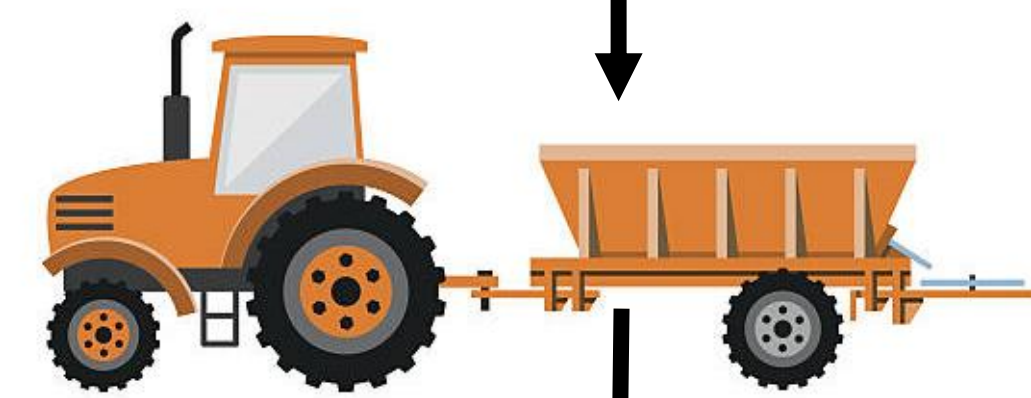
Microplastics in Wastewater



Microplastics can enter wastewater via washing machines, sinks, baths, industry drains and storm drains.



Captured microplastics concentrate in sewage sludge.



Microplastics in sewage sludge are then deposited on land. Is this a problem?



Up to 99% of microplastics in wastewater are removed⁴.

Due to large flows, high concentrations of microplastics still end up in rivers/sea/lakes.



My Research

To investigate microplastics in wastewater, sewage sludge and agricultural fields.

References
1. Abreu et al., (2019)
2. Browne et al., (2011)
3. Browne et al., (2011)
4. Lares, et al., (2018).