

The amount of tire abrasion and the resulting microplastics entering the aquatic environment via road runoff have not yet been researched. The joint research project RAU seeks to address this and will comprehensively describe tire particles throughout the useful service life of tires, closing the knowledge gaps on where particle loss occurs over the entire life cycle. The goal is to identify and assess the entry points of tire materials into the aquatic environment and to develop reduction measures.

## Sampling

Environmental samples will be systematically obtained from road runoff, road sweepings and air, to quantify the amounts of tire wear.

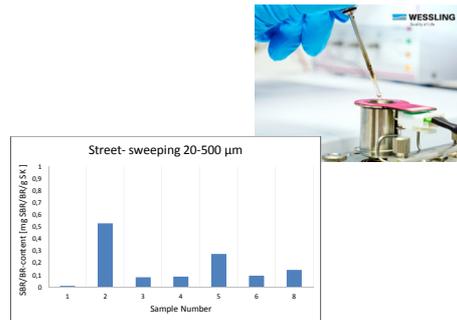
A sampling basket for street drains that allows fractional sampling of a rain event directly in the drainage shaft using defined mesh sizes (down to 6  $\mu\text{m}$ ) was developed



## Analysis/ Results

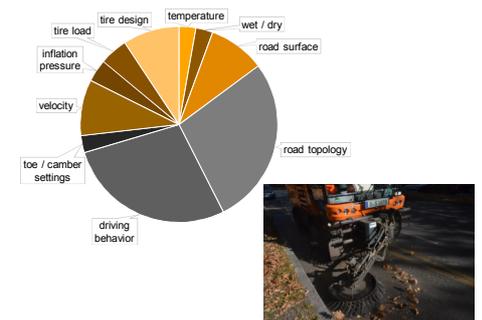
Tire material consists of 30 or more individual components.

An applied analytical method is Pyrolysis-GC/MS (pyrolysis-gas-chromatography). The Polymer Styrol-Butadiene Rubber (SBR) identified as an indicative parameter, which can be detected qualitatively as well as quantitatively.



## Influencing factors/ Measures

When tires transmit the vehicle force to the road, wear occurs due to friction and slip. By predicting how the driving situation influences the wear rate, specific countermeasures to wear particle emissions are deduced. Furthermore, the effectiveness of professional street cleaning is verified as a local measure.



Based on the data and findings gained in the project, an initial recommendation for action (evaluation tool) and a catalogue of measurement will be developed. Important key performance indicators are a mass balance, particle size distribution, and chemical properties.

## Contact

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