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Testing of organic materials as adsorbents and biofilm carrier for the removal of micro pollutants (PFAS Polyflourinated substance) from wastewater

Contact

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Project Description

Problem description

Polyflourinated substances (PFAS in Swedish), characterised as hydrophobic and lipophobic, pose major concerns to the environment and drinking water quality due to their persistence and accumulation. PFAS are commonly used in household detergents and cleaning products and impregnation of textiles, carpets, papers, polishes and paints etc. These substances end in wastewater stream and current wastewater treatment plant are not designed to remove them effectively. Thus, the existing wastewater treatment processes need to be enhanced or complemented with other removal processes to achieve removal of PFAS from wastewater before it reaches water recipient. The objective of this work is to test some materials as adsorbents and biofilm carrier for the removal of PFAS from wastewater and compare them to activated carbon. This study aims also at identifying factors that promotes adsorption and biological degradation of the PFAS.

The specific objective of the study is to test the potential of bark material as adsorbents and biofilm carrier for the removal of PFAS from wastewater.

Work description

Small scale filters filled with bark will be installed and fed with wastewater. Influent and effluent from the columns will be collected and concentration of PFAS will be analysed in the water. Active carbon filters will be installed and bark filters will be compared to active carbon filters. Student is expected to monitor the filters, perform the lab analysis, analyse the results and write comprehensive thesis report. The project will start in January 2016.