

Reducing organic fouling of polymeric ultrafiltration hollow fiber membranes by tailored additives

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Among the known membrane methods, ultrafiltration (UF) already takes an important position for water treatment, as UF impurities such as bacteria and viruses, but also biopolymers and particles are safely removed at moderate operation pressure. However, for many applications a further performance increase especially regarding flux and recovery is limited due to organic fouling.

The presentation will show results of a research project targeting the identification of suitable additives for UF membranes in order to improve permeability and retention as well as to reduce organic fouling. In standardized and highly reproducible fouling tests with an extract of flower soil as a substitute for natural organic foulants, more than 20 different membrane materials in different shapes such as flat sheets, singlebore fibers and multibore fibers were evaluated. Tests were conducted at different flux rates and concentrations of the flower soil extract to show differences in reversible and irreversible fouling during one day operation. With a selection of the best performing membranes it is now planned to conduct experiments with waste water treatment plant effluent.