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Abstract

Membrane fouling is the most serious challenge in the hollow fiber microfiltration (MF) and ultrafiltration (UF) processes. A number of in-situ monitoring techniques including optical and non-optical probes have been developed so that membrane fouling is better understood and controlled. This will help advance the membrane technology. In addition, the local filtration hydrodynamics wield a great influence on the membrane fouling formation and system operation stability. State-of-the-art in-situ monitoring techniques for membrane fouling and local filtration characteristics in hollow fiber MF/UF processes are critically reviewed. The principles and applications of these techniques are addressed in order to assess