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Effects of operating conditions on hollow fiber membrane systems used as pretreatment for spandex wastewater reverse osmosis

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ABSTRACT

Three different types of ultrafiltration (UF) membranes were investigated to treat the effluents of secondary sedimentation tank of spandex wastewater. The main parameters studied consist of the UF membrane pore size, the backwash frequency and duration time, filtration mode and the stability of the UF system. The results showed that (1) the cross-flow filtration was better in restoring K decline than the dead-end filtration; (2) the optimized backwash frequency and duration were 30 min and 2 min, respectively; (3) the modified polysulfone (PSf) UF membrane (100 kDa) was determined to be the appropriate membrane; (4) the continuous operation experiment showed that this UF system was stable.

Keywords: Spandex wastewater; UF membrane; Backwash frequency; Backwash duration; Cross-flow filtration; Dead-end filtration

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