Abstract

The application of cross-flow ultrafiltration to regenerate secondary effluents is limited by membrane fouling. This work analyzes the influence of the main operational parameters (transmembrane pressure and cross-flow velocity) about the selectivity and fouling observed in an ultrafiltration tubular ceramic membrane. The experimental results have shown a significant retention of the microcolloidal and soluble organic matter (52 – 54%) in the membrane. The fouling analysis has defined the critical operational conditions where the fouling resistance is minimized. Such conditions can be described in terms of a dimensionless number known as shear stress number and its relationship with other dimensionless parameter, the fouling number.

Keywords

Cross-flow ultrafiltration, ceramic membrane, regenerated water, membrane fouling.