

## Natural organic matter fouling using a cellulose acetate copolymer ultrafiltration membrane

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### ABSTRACT

The low molecular weight cut-off ultrafiltration process has become acceptable for drinking water treatment; however, irreversible fouling curtails the economic viability of such process. The objective of this study was to evaluate the effectiveness of an ultrafiltration membrane on natural organic matter rejection and the components of natural water that contribute to fouling. Membranes with different molecular weight cut-off were employed. Experimental solutions consist of natural organic matter isolated from natural water or humic substances. The experimental solutions were prefiltered and diluted to prevent cake formation on membrane and change the fouling mode to pore blockage. The aggregation rejection caused irreversible fouling of the 100 kDa membrane, presumably a result of pore size reduction due to internal deposition aggregates. The solution showed differences in rejection, flux decline and membrane resistance.

**Keywords:** Natural organic matter, Cellulose acetate; Copolymers; Ultrafiltration membrane; NOM; UF fouling

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