



Comparison of cellulose acetate and nanofiltration membranes for color removal from a Norwegian lake

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ABSTRACT

Norwegian lake water treatment is dominated by cellulose acetate (CA) membranes, which serve approximately 3% of the population. The quality requirements for potable water are becoming stringent and Dow Water & Process Solutions has suggested nanofiltration (NF) as a suitable technology replacement in cases where CA membranes fail to meet the quality limits. This paper discusses the operating experience of the first CA plant retrofit trial in Norway, where the treatment goal was to remove color, organic matter and bacteria from surface lake water to produce potable water for the community. The project has shown that nanofiltration membranes can provide excellent water quality in terms of color, bacteria and an overall TOC rejection (98%). The end user reports a clear improvement in the water quality compared to CA membranes. The trial was executed with minimal modifications to the existing plant. This paper focuses on evaluating the feasibility of the current set up and gives recommendations on further process optimization in terms of improving pre-treatment and cleaning, as well as the cost evaluation of the recommended modifications.

Keywords: NF; Potable water; Color removal; TOC removal

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