

## Treatment of dye solutions by DL nanofiltration membrane

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Received 23 July 2016; 13 October 2016

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### ABSTRACT

This study describes the rejection of acid black 194 dye using a DL nanofiltration membrane. Membrane experiments were conducted in a cross-flow system. Effects of membrane pressure (5, 10, and 15 bar), feed pH (3, 7, and 10), feed temperature (25, 35, and 45°C) and dye concentration in the feed solution (50, 500, and 1000 mg/L) on the membrane performance were investigated. The surface morphologies of membranes were investigated using scanning electron microscopy (SEM). The results indicate that the DL membrane has satisfactory average dye rejection ( $99.72 \pm 0.140\%$ ) at operating pressure of 5 bar, 1000 mg/L dye concentration, 25°C feed temperature and feed pH = 7.

**Keywords:** Acid black 194; Cross-flow system; DL membrane; Nanofiltration

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*Presented at the EDS conference on Desalination for the Environment: Clean Water and Energy, Rome, Italy, 22–26 May 2016.*