Anaerobic treatment of ozonated membrane concentrate

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ABSTRACT

A concentrate stream is generated by the application of nanofiltration (NF) membranes in wastewater reuse. Due to the high concentrations of pollutants, disposal of NF concentrates is an important problem. In this study, ozonation and anaerobic treatment processes were performed to treat cotton dyeing textile mill wastewater NF concentrate. After ozonation, the concentration of biochemical oxygen demand (BOD5) increased while dissolved chemical oxygen demand (DCOD) decreased. Thus, biodegradability of the concentrate was increased by the ozonation process. The average removal efficiencies of DCOD, BOD5, and sulfate (SO4 2−/C0 4 ) in the anaerobic process were achieved about 72, 76, and 68%, respectively. These results indicated that the combination of ozonation and anaerobic treatment showed a remarkable performance for the removal of pollutants from NF concentrate.

Keywords: Anaerobic treatment; Membrane concentrate; Ozone; Textile wastewater

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