Evaluation of Membrane Fouling Index for Secondary Wastewater

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The performance of membrane operation is often reduced because of concentration polarization and fouling, which causes continuous flux decline. Fouling phenomena have been characterized by using many parameters such as the silting index, plugging index, fouling index and membrane filtration index. The general limitation of these methods is the requirement of long time. Hence, studies were carried out to minimize the time required to evaluate the fouling index by combining the pressure variation and effluent volume obtained for short time, under various operating conditions including powdered activated carbon dose, permeate flow rate, pH of the feed solution, feed temperature etc. Results showed that flux decline for secondary domestic wastewater was highly dependent on the powdered activated carbon dose. Especially, the proposed method considerably reduced the measuring time for determining the fouling index.