Environmental Engineering and Management Journal

July 2011, Vol.10, No. 7, 887-891
http://omicron.ch.tuiasi.ro/EEMJ/

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PERFORMANCE OF MEMBRANE BIOREACTOR (MBR) PROCESS TREATING WASTEWATER CONTAINING DIFFERENT CONTENT OF SEAWATER

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Abstract

A submerged membrane bioreactor (MBR) was employed to treat wastewater containing different content of seawater in this work. During the process, the operating conditions were as follows: COD was 800-1000 mg/L, ammonium-N was 80-100 mg/L, pH was 7.5-8.5, mixed liquor suspended solids (MLSS) was around 7000 mg/L, dissolved oxygen (DO) was 2-4 mg/L. The results showed that the ammonium-N removal was better than COD removal. Sludge settling property was good in saline wastewater treatment, and the sludge became quite compact as the wastewater contained 70% seawater. Membrane fouling was aggravated mainly because the extracellular polymeric substances (EPS). The trans-membrane pressure (TMP) increased from 5 kPa to 44 kPa during first 180 days of operation. After the physical and chemical cleaning, it dropped to 8 kPa. The filtration capacity of the membrane was recovered.

Key words: MBR process, membrane fouling, sludge volume index (SVI)

Received: March, 2011; Revised final: July, 2011; Accepted: July, 2011

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