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Impact of Feed Water pH and Membrane Material on Nanofiltration of Perfluorohexanoic Acid in Aqueous Solution

Chenghui Zeng¹, Shuhei Tanaka², Yuji Suzuki², Shigeo Fujii²

1. Graduate School of Engineering, Kyoto University, Yoshida, Sakyo-ku, Kyoto, Japan

2. Graduate School of Global Environmental Studies, Kyoto University, Yoshida, Sakyo-ku, Kyoto, Japan

Abstract

Nanofiltration was thought to be a good option for the recovery of perfluorohexanoic acid (PFHxA) from industrial wastewater. In this study, two commercially available nanofiltration (NF) membranes (NF 270 and NTR-7450) were tested to concentrate the PFHxA in aqueous solution. Filtration test was conducted in crossflow filtration mode. Membrane flux and PFHxA rejection rate were monitored throughout the filtration test. The impact of initial feed water pH on membrane performance was investigated. Results demonstrated that the two NF membranes showed different response to the change of initial feed water pH, which was caused by the intrinsic properties of membrane material. The flux performance of NF 270 was stable, while its rejection rate of PFHxA was very sensitive to the change of initial feed water pH. Opposite result was obtained with NTR-7450. It has a very good stability on rejection rate, while its flux is very sensitive to the change of

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