

Home > Journal > Earth & Environmental Sciences > JWARP

[Indexing](#) [View Papers](#) [Aims & Scope](#) [Editorial Board](#) [Guideline](#) [Article Processing Charges](#)

JWARP > Vol.1 No.3, September 2009

OPEN ACCESS

## Pilot Study of Ultrafiltration-Nanofiltration Process for the Treatment of Raw Water from Huangpu River in China

PDF (Size: 421KB) PP. 203-209 DOI : 10.4236/jwarp.2009.13025

### Author(s)

Jianping ZHOU, Naiyun GAO, Guangyong PENG, Yang DENG

### ABSTRACT

Pilot-scale test was carried out to evaluate the performance of a combined ultrafiltration (UF)-nanofiltration (NF) membrane process for the treatment of raw water from Huangpu River, Shanghai, in China. Results showed that UF could significantly remove turbidity, iron and manganese, and also could retain a part of high molecular weight (MW) organic compounds. Subsequently, NF could further reject low MW organics and inorganic salts, and ensured the treated water to reach the Standards for Drinking Water Quality in China. It seemed that 90 L/m<sup>2</sup>h was an appropriate permeate flux for UF system when the raw water was directly filtered by UF membrane, the addition of coagulant (alum or ferric chloride) was not preferable to mitigate the fouling of the UF membrane. After near 120 days operation, the permeate flux of NF could be main-tained at 24-25 L/m<sup>2</sup>h steadily, and no chemical clean was required.

### KEYWORDS

Ultrafiltration, Nanofiltration, Permeate Flux, Fouling

### Cite this paper

J. ZHOU, N. GAO, G. PENG and Y. DENG, "Pilot Study of Ultrafiltration-Nanofiltration Process for the Treatment of Raw Water from Huangpu River in China," *Journal of Water Resource and Protection*, Vol. 1 No. 3, 2009, pp. 203-209. doi: 10.4236/jwarp.2009.13025.

### References

- [1] [1] Y. Magara, S. Kunikane, and M. Itoh, " Advanced mem-brane technology for application to water treatment," *Wat Sci Tech* , Vol. 37, pp. 91– 99, October 1998.
- [2] [2] AWWA Membrane technology research committee, " Committee report: Membrane process," *JAWWA*, Vol. 90, pp. 91– 105, June 1998.
- [3] [3] S. Kunikane, M. Iton, and Y. Magara, " Advanced mem-brane technology of application to water treatment," *Wa-ter Supply*, Vol. 16, pp. 313– 318, January 1998.
- [4] [4] Amy, L. Gary, Collins, R. Michael, Kuo, C. James, King, and H. Paul, " Comparing gel permeation chromatography and ultrafiltration for the molecular weight characteriza-tion of aquatic organic matter," *J. AWWA*, Vol. 79, pp. 43– 39, January 1987.
- [5] [5] W. Liu, H. Wu, Z. Wang, S. L. Ong, J. Y. Hu and W. J. Ng, " Investigation of assimilable organic carbon (AOC) and bacterial regrowth in drinking water distribu-tion sys-tem," *Water Research*, Vol. 36, pp. 891– 898. February 2002.
- [6] [6] D. Van der Kooij, W. A. M. Hijnen, and A. Visser, " De-termining the concentration of easily assimilable organic carbon in drinking water," *J. AWWA*, Vol. 74, pp. 540– 545, October 1982.
- [7] [7] P. M. Huck, " Measurement of biodegradable organic matter and bacterial growth potential in drinking water," *J. AWWA*, Vol. 82, pp. 78– 86, July 1990.
- [8] [8] N. Park, B. Kwon, M. Sun, H. Ahn, C. Kim, C. Kwoak, D. Lee, S. Chae, H. Hyung, and J. Cho, " Application of various membranes to remove NOM typically occurring in Korea with respect to DBP,

- [Open Special Issues](#)
- [Published Special Issues](#)
- [Special Issues Guideline](#)

[JWARP Subscription](#)

[Most popular papers in JWARP](#)

[About JWARP News](#)

[Frequently Asked Questions](#)

[Recommend to Peers](#)

[Recommend to Library](#)

[Contact Us](#)

Downloads: 402,262

Visits: 1,010,926

[Sponsors, Associates, and Links >>](#)

- [9] [9] C. Cabassud, C. Anselme, and J. J. Bersillon, " Ultrafiltra-tion as a non-polluting alternative to traditional clarifica-tion in water treatment," Filtration &separation, Vol. 28, pp.194– 198, July 1999.
- [10] [10] Z. Wang, J. M. Yao, C. Zhou and J. S Chu, " The influ-ence of various operating conditions on the permeation flux during dead-end microfiltration," Desalination, Vol. 212, pp. 209– 218, June 2007.
- [11] [11] C. Guigui, J. C. Rouch, L. Durand-Bourlier, V. Bonnelye and P. Aptel, " Impact of coagulation conditions on the in-line coagulation/UF process for drinking water pro-duction," Desalination, Vol.