

参考文献

- Adham, S., Jacangelo, J. G. and Laine, J. M. (1993) *J. AWWA.*, 87:62.
- Brindle, K. and Stephenson, T. (1996) “The application of membrane biological reactors for the treatment of wastewaters.” *Biotechnol. Bioeng.*, 49, 601-610.
- Bouhabila, E. H., Aim, R. B. and Buisson, H. (1998) “Microfiltration of activated sludge using submerged membrane with air bubbling (application to wastewater treatment).” *Desalination*, 118, 315-322.
- Bura, R., Cheung, M., Liao, B., Finlayson, J., Lee, B. C., Droppo, I. G., Leppard, G. G. and Liss, S. N. (1998) “Composition of Extracellular Polymeric Substances in the Activated Sludge Floc Matrix.” *Water Sci. Technol.*, 37, 325-333.
- Baker, D. J. and Stuckey, D. C. (1999) “A review of soluble microbial products (SMP) in wastewater treatment system” *Water Sci. Technol.*, 33, 3063-3082.
- Bouhabila, E. H., Aim, R. B. and Buisson, H. (2001) “Fouling characterisation in membrane bioreactors.” *Sep. Purif. Technol.*, 22-23, 123-132.
- Bai, R. B. and Leow, H. F. (2002) “Microfiltration of activated sludge wastewater-the effect of system operation parameters.” *Sep. Purif. Technol.*, 29, 189-198.
- Bacchin, P. (2004) A possible link between critical and limiting flux for colloidal systems: consideration of critical deposit formation along a membrane. *J. Membr. Sci.*, 228, 237-241.
- Bae, T. H. and Tak, T. M. (2005) “Interpretation of fouling characteristics of ultrafiltration membranes during the filtration of MBR mixed liquor.” *J. Membr. Sci.*, 264, 151-160.
- Carman, P. C. (1938) “Fundamental principles of industrial filtration.” *Trans. Inst. Chem. Eng.*, 16, 168-176.
- Chang, I. S., Choo, K. H., Lee, C. H., Koh, J. H., Kim, S. W., Paik, U. H. and Koh, U. C. (1994) “Application of ceramic membrane as a pretreatment in anaerobic digestion of alcohol-distillery wastes.” *J. Membr. Sci.*, 90, 131-139.

Cote, P., Buisson, H., Pound, C. and Arakaki, G. (1997) "Immersed membrane activated sludge for the reuse of municipal wastewater." *Desalination*, 113, 189-196.

Chen, V., Fane, A. G., Madaeni, S. and Wenten, I. G. (1997) "Particle deposition during membrane filtration of colloids : transition between concentration polarization and cake formation." *J. Membr. Sci.*, 125, 109-122.

Chang, I. S. and Lee, C. H. (1998) "Membrane filtration characteristics in membrane coupled activated sludge system-the effect of physiological states of activated sludge on membrane fouling." *Desalination*, 120, 221-233.

Cicek, N., Franco, P., Suidan, M., Urbain, V. and Manem, J. (1999) "Characterization and comparison of a membrane bioreactor and a conventional activated-sludge system in the treatment of wastewater containing high-molecular-weight compounds." *Water Environ. Res.*, 71, 64-70.

Chang, I. S., Lee, C. H. and Ahn, K. H. (1999) "Membrane filtration characteristics in membrane coupled activated sludge system : the effect of floc structure of activated sludge on membrane fouling." *Sep. Sci. Technol.*, 34, 1743-1758.

Chang, I. S., Le-Clech, P., Jefferson, B. and Judd, S. (2002) "Membrane fouling in MBRs for wastewater treatment." *J. Environ. Eng.*, 128:11.

Chan, R., Chen, V. and Bucknall, M. P. (2002) "Ultrafiltration of protein mixtures: measurement of apparent critical flux, rejection performance, and identification of protein deposition." *Desalination*, 146, 83-90.

Cho B. D. and Fane A. G. (2002) "Fouling transient in nominally sub-critical flux operation of a membrane bioreactor." *J. Membr. Sci.*, 209, 391-403.

Choi, K. Y. J. and Dempsey, B. A. (2005) "Bench-scale evaluation of critical flux and TMP in low-pressure membrane filtration." *J. AWWA.*, 97:7.

Defrance, L. and Jaffrin, M. Y. (1999) "Comparison between filtrations at fixed transmembrane pressure and fixed permeate flux : application to a membrane bioreactor used for wastewater treatment." *J. Membr. Sci.*, 152, 203-210.

- Defrance L., Jaffrin M. Y., Gupta B., Paullier P. and Geaugey V. (2000) "Contribution of various constituents of activated sludge to membrane bioreactor fouling." *Bioresour. Technol.*, 73, 105-112.
- Fane, A. G., Fell, C. J. D. and Nor, M. T. (1981) "Ultrafiltration/ Activated sludge system-development of a predictive model." *Polym. Sci. Technol.*, 13, 631-658.
- Field, R. W., Wu, D., Howell, J. A. and Gupta, B. B. (1995) "Critical flux concept for microfiltration fouling." *J. Membr. Sci.*, 100, 259-272.
- Frolund, B., Palmgren, R., Keiding, K. and Nielsen P. H. (1996) "Extraction of extracellular polymers from activated sludge using a cation exchange resin." *Water Res.*, 30, 1749-1758.
- Fang, H. H. P. and Liu, H. (2002) "Extraction of extracellular polymeric substance (EPS) of sludge" *J. Biotech.*, 95, 249-256
- Fang, H. H. P. and Shi, X. (2005) "Pore fouling of microfiltration membranes by activated sludge." *J. Membr. Sci.*, 264, 161-166.
- Fan, F. S., Zhou, H. and Husain, H. (2006) "Identification of wastewater sludge characteristics to predict critical flux for membrane bioreactor processes." *Water Res.*, 40, 205-212.
- Gerhardt, P. and Murray, R. G. E. (1981) "Manual of methods for general bacteriology" *American Society for Microbiology*, Washington, D.C., Chapter 17, 333-334.
- Gander, M., Jefferson, B. and Judd, S. (2000) "Aerobic MBRs for domestic wastewater treatment: A review with cost considerations." *Sep. Purif. Technol.*, 18, 119-130.
- Hodgson, P. A., Leslie, G. L., Schneider, R. P., Fane, A. G., Fell, C. J. D. and Marshall, K. C. (1993) "Cake resistance and solute rejection in bacterial microfiltration: The role of the extracellular matrix." *J. Membr. Sci.*, 79, 35-53.
- Howell, J. A. (1995) "Sub-critical flux operation of microfiltration." *J. Membr. Sci.*, 107, 165-171.
- Huang, X., Liu, R. and Qian, Y. (2000) "Behaviour of soluble microbial products in a membrane bioreactor." *Process Biochem.*, 36, 401-406.

- Hong, S. P., Bae, T. H., Tak, T. M., Hong, S. and Randall, A. (2002) "Fouling control in activated sludge submerged hollow fiber membrane bioreactors." *Desalination*, 143, 219-228.
- Howell, J. A., Chua, H. C. and Arnot, T. C. (2004) "In situ manipulation of critical flux in a submerged MBR using variable aeration rates, and effects of membrane history." *J. Membr. Sci.*, 242, 13-19.
- Jorand, F., Guicherd, P., Urbain, V., Manem, J. and Block, J. C. (1994) "Hydrophobicity of activated sludge flocs and laboratory growth bacteria." *Water Sci. Technol.*, 30, 211-218.
- Jorand, F., Zartarian, F., Thomas, F., Block, J. C., Bottero, J. Y., Villemin, G., Urbain, V. and Manem, J. (1995) "Chemical and structural (2D) linkage between bacteria within activated sludge flocs." *Water Res.*, 29, 1639-1647.
- Kim, J. S., Lee, C. H., and Chun, H. D. (1998) "Comparison of ultrafiltration characteristics between activated sludge and BAC sludge." *Water Res.*, 32, 3443-3451.
- Kim, J. S., Lee, C. H., and Chang, I. S. (2001) "Effect of pump shear on the performance of a crossflow membrane bioreactor." *Water Res.*, 35, 2137-2144.
- Kaichang, Y., Xianghua, W., QingJie, B. and Huang, X. (2003) "Critical flux enhancements with air sparging in axial hollow fibers cross-flow microfiltration of biologically treated wastewater." *J. Membr. Sci.*, 224, 69-79.
- Kimura, K., Yamato, N., Yamamura, H. and Watanabe, Y. (2005) "Membrane fouling in pilot-scale membrane bioreactors treating municipal wastewater" *Environ. Sci. Technol.*, 39, 6293-6299.
- Lubbecke, S., Vogelpohl, A. and Dewjanin, W. (1995) "Wastewater treatment in a biological high-performance system with high biomass concentration" *Water Res.*, 29, 793-802.
- Liu, R., Huang, X., Wang, C., Chen, L. and Qian, Y. (2000) "Study on hydraulic characteristics in a submerged membrane bioreactor process." *Process Biochem.*, 36, 249-254.

Li, H., Fane A. G., Coster H. G. L. and Vigneswaran S. (2000) “An assessment of depolarisation models of crossflow microfiltration by direct observation through the membrane.” *J. Membr. Sci.*, 172, 135-147.

Le-Clech, P., Jefferson, B., Chang, I. S. and Judd, S. (2003a) “Critical flux determination by the flux-step method in a submerged membrane bioreactor.” *J. Membr. Sci.*, 227, 81-93.

Le-Clech, P., Jefferson, B. and Judd, S. (2003b) “Impact of aeration, solids concentration and membrane characteristics on the hydraulic performance of a membrane bioreactor” *J. Membr. Sci.*, 218, 117-129.

Lim, A. L. and Bai, R. (2003) “Membrane fouling and cleaning in MF of activated sludge wastewater.” *J. Membr. Sci.*, 216, 279-290.

Muller, E. B., Stouthamer, A. H. M., Versteeg, H. W. and Eikelboom, D. H. (1995) “Aerobic domestic wastewater treatment in a pilot with complete sludge retention by crossflow filtration.” *Water Res.*, 29, 1179-1189.

Madaeni S., Fane A., and Wiley D. (1999) “Factors influencing critical flux in membrane filtration of activated sludge.” *J. Chem. Technol. Biotechnol.*, 74, 539-543.

Mukai, T., Takimoto, K., Kohno, T. and Okada, M. (2000) “Ultrafiltration behaviour of extracellular and metabolic products in activated sludge system with UF separation process.” *Water Res.*, 34, 902-908.

MBR focus : the operators’ perspective, *Filtration+Separation, Industry focus*, 20.

Meng, F., Zhang, H., Yang, F., Li, Y., Xiao, J. and Zhang, X. (2006) “Effect of filamentous bacteria on membrane fouling in submerged membrane reactor” *J. Membr. Sci.*, 272, 161-168.

Nagaoka, H., Yamanishi, S. and Miya, A. (1998) “Modeling of biofouling by extracellular polymers in a membrane separation activated sludge.” *Water Sci. Technol.*, 38, 497-504.

Ng, H. Y., Slawomir, W. and Hermanowicz. (2005) “Membrane bioreactor operation at short retention times : performance and biomass characteristics.” *Water Res.*, 39, 981-992.

Ognier, S., Wisniewski, C. and Grasmick, A. (2004) "Membrane bioreactor fouling in sub-critical filtration conditions : a local critical flux concept." *J. Membr. Sci.*, 229, 171-177

Pieracci, J., Crivello, J. V. and Belfort, G. (1999) "Photochemical modification of 10 kDa polyethersulfone ultrafiltration membranes for reduction of biofouling." *J. Membr. Sci.*, 156, 223-240.

Pollice, A., Brookes, A., Jefferson, B. and Judd, S. (2005) "Sub-critical flux fouling in membrane bioreactors - a review of recent literature." *Desalination*, 174, 221-230.

Rittmann, B. E., Bae, W., Namkung, E., and Lu, C. J. (1987) "A critical evaluation of microbial product formation in biological processes." *Water Sci. Technol.*, 19, 517-528.

Rosenberger, S., Kruger, U., Witzig, R., Manz, W., Szewzyk, U. and Kraume, M. (2002) "Performance of a bioreactor with submerged membranes for aerobic treatment of municipal wastewater." *Water Res.*, 36, 413-420.

Rosenberger, S. and Kraume, M. (2002) "Filterability of activated sludge in membrane bioreactors." *Desalination*, 146, 373-379.

Rosenberger, S., Evenblij, H., te Poele, S., Wintgens, T. and Laabs, C. (2005) "The importance of liquid phase analyses to understand fouling in membrane assisted activated sludge processes-six case studies of different European research group." *J. Membr. Sci.*, 263, 113-126.

Rojas, M. E. H., Kaam R. V., Schetrite, S. and Albasi, C. (2005) "Role and variations of supernatant compounds in submerged membrane bioreactor fouling." *Desalination*, 179, 95-107.

Shimizu, Y., Rokudai, M., Tohya, S., Kayaware, E., Yazawa, T., Tanaka, H. and Eguchi, K. (1989) "Filtration characteristics of charged alumina membranes for methanogenic waste." *J. Chem. Eng.*, 22, 635-641.

Shimizu, Y., Rokudai, M., Thoya, S., Tanaka, H., and Eghchi, K. (1990) "Effect of membrane resistance on filtration characteristics for methanogenic wastes." *Kakaku Kogaku Ronbunshu*, 16, 145.

Sato, S. and Ishii, Y. (1991) "Effects of activated sludge properties on water flux of ultrafiltration membrane used for human excrement treatment." *Water Sci. Technol.*, 23, 1601-1608.

- Strohwald, N. K. H. and Ross, W. R. (1992) "Application of the ADUF process to brewery effluent on a laboratory scale." *Water Sci. Technol.*, 25, 95-105.
- Stephenson, T., Judd, S., Jefferson, B. and Brindle, K. (2000) "Membrane Bioreactors for Wastewater Treatment." IWA, London.
- Ueda T., Hata K. and Kikuoka Y. (1996) "Treatment of domestic sewage from rural settlements by a membrane bioreactor." *Water Sci. Technol.*, 34, 189-196.
- Urbain, V., Mobarry, B., De Silva, V., Stahl, D. A., Rittmann, B. E. and Manem, J. (1998) "Integration of performance, molecular biology and modeling to describe the activated sludge process." *Water Sci. Technol.*, 37, 223-229.
- Ueda, T. and Horan, N.J. (2000) "Fate of indigenous bacteriophage in a membrane bioreactor." *Water Res.*, 34, 2151-2159.
- Visvanathan, C., Yang, B. S., Muttamara, S. and Maythanukhraw, R. (1997) "Application of air backflushing technique in membrane bioreactor." *Water Sci. Technol.*, 36, 259-266.
- Visvanathan, C., Aim, R. B. and Parameshwaran, K. (2000) "Membrane separation bioreactors for wastewater treatment." *Critical Reviews in Environ. Sci. Technol.*, 30, 1-48.
- Wisniewski, C. and Grasmick, A. (1998) "Floc size distribution in a membrane bioreactor and consequences for membrane fouling." *Colloids Surf., A*, 138, 403-411.
- Wu, D., Howell, J. A. and Field, R. W. (1999) "Critical flux measurement for model colloids." *J. Membr. Sci.*, 152, 89-98.
- Wen, C., Huang, X. and Qian, Y. (1999) "Domestic wastewater treatment using an anaerobic bioreactor coupled with membrane filtration" *Process Biochem.*, 35, 335-340.
- Wang, Y., Kim, J. H., Choo, K. H., Lee, Y. S. and Lee, C. H. (2000) "Hydrophilic modification of polypropylene microfiltration membrane by ozone-induced graft polymerization." *J. Membr. Sci.*, 169, 269-276.
- Wisniewski, C., Grasmick, A. and Cruz, A. L. (2000) "Critical particle size in membrane bioreactors case of a denitrifying bacterial suspension." *J. Membr. Sci.*, 178, 141-150.

Yamamoto, K., Hiasa, M., Mahmood, T. and Matsuo, T. (1989) "Direct solid-liquid separation using hollow fiber membrane in an activated sludge aeration tank." *Water Sci. Technol.*, 21, 43-54.

Yamamoto, K. (1994) "Membrane filtration in rapid filtration, biological filtration and membrane filtration." Gihodo Shuppan, Tokyo, 255.

Yang, W., Cieck, N. and Ilg, J. (2006) "State-of the art of membrane bioreactors : Worldwide research and commercial applications in North America." *J. Membr. Sci.*, 270, 201-211.

Zhang, B. and Yamamoto, K. (1996) "Seasonal change of microbial population and activities in the buliding wastewater reuse system using a membrane separation activated sludge process." *Water Sci. Technol.*, 34, 295-302.

Zhang, B., Yamamoto, K., Ohgaki, S. and Kamiko, N. (1997) "Floc size distribution and bacterial activities in membrane separation activated sludge processes for small-scale wastewater treatment/reclamation." *Water Sci. Technol.*, 35, 37-44.

Zydney, (2005) Southeast Asia Internationl Training and Research Program for Groundwater Treatment Technologies and Advanced Membrane Processes, Taipei.

呂維明、呂文芳 (1994) “過濾技術” , 高立圖書有限公司

杜松翰 (2004) “沉浸式生物薄膜系統之阻塞機制與清洗方式探討” , 國立交通大學環境工程研究所碩士論文

陳君豪 (2003) “射頻電漿與聚合物表面之作用” , 國立清華大學物理學系碩士論文