
Micellar-enhanced ultrafiltration (MEUF) – state of the art

M. Schwarze

MEUF is a technique for contaminant removal from aqueous solutions, but its efficiency depends on a variety of operational parameters.

A review of the management and treatment of brine solutionsBiplob Kumar Pramanik, Li Shu
and Veeriah Jegatheesan*

This paper critically reviews current technologies for concentrate management including emerging membrane technologies, which could recover valuable minerals from brine solutions.

Saving energy with an optimized two-stage reverse osmosis systemQuantum J. Wei, Ronan K. McGovern
and John H. Lienhard V*

We optimize the design and operation of two-stage reverse osmosis desalination systems and identify the operating conditions that will maximize energy savings.

Tailored water treatment using enhanced primary clarification for nutrient recovery and production of water for turfgrass irrigation

Dotti F. Ramey, Junko Munakata-Marr and Tzahi Y. Cath*

Enhanced primary clarification coupled with hypoaerobic biological treatment can produce fertigation water having targeted nitrogen and phosphorus concentrations without substantial changes to biological treatment and without increasing energy requirements.

Emerging investigators series: hydrogen sulfide production in municipal stormwater retention ponds under ice covered conditions: a study of water quality and SRB populations

Patrick M. D'Aoust, Robert Delatolla,* Alexandre Poulain, Galen Guo, Ru Wang, Colin Rennie, Liyu Chen and Frances R. Pick

Sulfide production in stormwater ponds is a result of increased ubiquitous SRB activity.

Removal of pharmaceuticals by a potassium ferrate(vi) material: from practical implementation to reactivity prediction

Vanessa Peings,* Thierry Pigot, Patrick Baylere, Jean-Marc Sotiropoulos and Jérôme Frayret

A ferrate(vi) material was used to treat a hospital effluent. Experimental measurements and calculations of the first ionization energies of pharmaceuticals were correlated to explain the oxidation selectivity of ferrate.

Antifouling and antibacterial behavior of polyethersulfone membrane incorporating polyaniline@silver nanocomposites

Song Zhao,* Lichuan Huang, Tiezheng Tong, Wen Zhang, Zhi Wang,* Jixiao Wang and Shichang Wang

Nanocomposites with antibacterial properties were synthesized through *in situ* reduction of silver ammonia aqueous solution ($\text{Ag}(\text{NH}_3)_2\text{OH}$) on polydopamine coated polyaniline (PANI) nanofibers.

Selective co-production of acetate and methane from wastewater during mesophilic anaerobic fermentation under acidic conditions

Xin-Rong Pan, Yun-Kun Wang, Wen-Wei Li,* Yan-Shan Wang, Xu Wang, Yun Cheng, Yi-Kun Geng, Chen-Xuan Li, Paul K. S. Lam and Han-Qing Yu*

Selective co-production of acetate and methane as the dominant liquid-phase and gas-phase products, respectively, from wastewater during mesophilic anaerobic fermentation was achieved at a pH ~ 5.0.

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Improved contaminant removal in vegetated stormwater biofilters amended with biochar

Bridget A. Ulrich, Megan Loehnert and Christopher P. Higgins*

The potential for carbonaceous sorbents to improve contaminant removal (particularly for trace organic contaminants, TOCs) in stormwater biofilters was evaluated in intermittently dosed, vegetated columns simulating scaled-down treatment systems.

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Computational design of 2D functional covalent-organic framework membranes for water desalination

Kang Zhang, Zhongjin He, Krishna M. Gupta and Jianwen Jiang*

A computational study is reported for water desalination through 2D covalent-organic framework membranes.

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Effect of multicomponent fouling during microfiltration of natural surface waters containing nC₆₀ fullerene nanoparticles

R. Floris, G. Moser, K. Nijmeijer and E. R. Cornelissen*

To understand and mitigate the role of surface water composition and associated membrane fouling in the removal of nC₆₀ nanoparticles by low-pressure membranes, experiments were carried out with microfiltration membranes using natural feed waters, mimicking separation in real industrial water treatment plants.

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Disintegration of aerobic granules during prolonged operation

Shasha Yuan, Mingming Gao, Fanping Zhu, Muhammad Zaheer Afzal, Yun-Kun Wang, Hai Xu, Mingyu Wang, Shu-Guang Wang and Xin-Hua Wang*

A comprehensive set of measurements is used to investigate the growth and disintegration of aerobic granules in different development stages.