Removing aqueous ammonia by membrane contactor process

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Received 15 June 2012; Accepted 5 October 2012

ABSTRACT

High-tech industries have been rapidly developing for the last two decades in Taiwan, which also result in high concentrations of various nitrogenous compounds in the wastewater, such as eutrophication. Polyvinylidene fluoride (PVDF) membranes with asymmetric structures and good hydrophobicity have been prepared by a phase-inversion method and applied for removal of ammonia from water by membrane contactor. Aqueous solution containing sulfuric acid was used as stripping solution to accelerate the removal of ammonia. It was found that the investigation of membrane contactor revealed that the flux of PTFE and PVDF (12 wt%) was 193.1 and 97.4 g NH₄⁺/m² h, respectively. Therefore, membrane contact system has great potential for future applications in wastewater treatment with high strength of ammonium.

Keywords: Ammonia removal; PVDF; Membrane conductor

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7th Aseanian Membrane Society Conference (AMS7), 4-7 July 2012, Busan, Korea

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