The removal of dissolved ammonia from wastewater through a polypropylene hollow fiber membrane contactor

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This study aims to evaluate the effectiveness of a polypropylene hollow fiber membrane contactor in removing dissolved ammonia in wastewater using sulfuric acid solution as an absorbent. In the ammonia removal experiments, wastewater and absorbent solutions flowed through the shell side and the lumen side of the contactor, respectively. The pH of wastewater, rate of circulation and ammonia initial concentration were operating variables which influenced the efficiency of the removal process. The efficiency of ammonia removal increases with the wastewater pH level when it is at the same circulation rate and time. In addition, the increase in the circulation rate of the wastewater will increase the efficiency of ammonia removal and the overall mass transfer coefficient. Meanwhile, the efficiency of ammonia removal and the overall mass transfer coefficient decreased with initial ammonia concentration in the wastewater solution.