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Hollow Fibre Membrane Contactors for Ammonia Recovery: Current Status and Future Developments

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Abstract

Hydrophobic membrane contactors represent a credible solution to the problem of recycling ammoniacal nitrogen from waste, water or wastewater resources. This study critically evaluated existing literature in terms of process principles, membrane types and functionality, membrane contactor application, technology status, and future research required. The key operational parameter was the presence of ammonia gas and thus pH should be above 9. Hollow fibre membranes are usually employed, composed of primarily polypropylene, polyvinylidene fluoride, or polytetrafluoroethylene. The stripping solution is normally sulphuric acid which reacts with ammonia to create ammonium sulphate. The acid is best circulated inside the lumen with any suitable velocity, and kept in excess concentration. In terms of operational parameters: feed fluid velocity is important in open