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Performance and modeling of zeolite adsorption for ammonia nitrogen removal

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ABSTRACT

This study was conducted to investigate the adsorption characteristics of synthetic zeolite for NH_4^+–N removal in fermentation permeates and to establish a mathematical model for system design. Zeolite with a size of 1.7–2.3 mm, cation exchange capacity 130 meq/100 g-zeolite, gravity 1.7, and micropore surface (product of TOSO Company) was used in this study. This experiment was focused on the following research points: (1) effect of pH on NH_4^+–N adsorption and (2) simulation on space velocity or line velocity as design and operational parameters by adsorption isotherm.

Keywords: Ammonia nitrogen; Zeolite; Fermented suspension; Modeling; Adsorption

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