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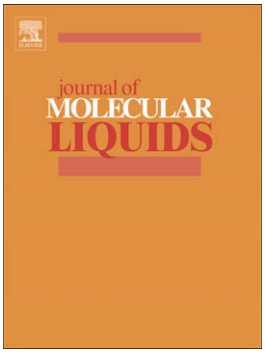

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Adsorption of phosphorus from aqueous solution by cubic zeolitic imidazolate framework-8: modeling, mechanical agitation versus sonication

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Abstract

Cubic zeolitic imidazolate framework-8 (ZIF-8), a new class of hybrid adsorbent, was synthesized and investigated for phosphorus (P) removal from aqueous solution. A prediction model for p adsorption was developed by performing the experiments according to central composite design. The adsorption model showed that P adsorption is associated directly with time and ZIF-8 dosage and indirectly with initial P concentration. The removal also increased with decrease in pH until reaching the critical pH of about 2.6. The efficiency of P removal under mechanically stirred increased with agitation speed from 100 to 300 rpm. In contrast to high ultrasonic frequency (130 kHz), sonication under 35 kHz provides

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