

### Application of ultrasonic atomization on the recovery of ionic liquids from aqueous solution

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Ionic liquids (ILs) are recently emerging as desirable substituents for volatile, toxic and flammable organic solvents due to the non-volatile character and thermal stability. However, the big challenge for the industrial applications of ILs resides in the economics of using ILs. The economic feasibility of ILs can be achieved by recycling them. Ultrasonic atomization is a phenomenon in which a fountain jet is formed on the liquid surface and the atomization occurs from the surface on the fountain jet when liquids solution is irradiated by ultrasound with high frequency. In this study ultrasonic atomization was investigated to recover ILs from ILs/water mixture. The effects of operating conditions such as ultrasonic atomization power, ILs initial concentration, carrier gas velocity, and solution temperature on the recovery of ILs from ILs/water mixtures were investigated. The result showed that efficiency of IL recovery increased with a decrease in ultrasonic power, carrier gas velocity, and solution temperature. It demonstrated that ultrasonic atomization can be efficiently used to recover ILs from its aqueous solution.