



Removal of trace FeCl₃ from aqueous solution by foam fractionation

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ABSTRACT

A foam fractionation technology of FeCl₃ from the simulated aqueous solution was studied by using dodecylbenzenesulphonic acid and (1-hexadecyl)trimethyl ammonium hydroxide as the surfactants, in order to develop a new desalination method, which has the virtues of simple equipments and technology, non-pollution and low cost. The effects of operating parameters such as pH and height of the bulk liquid, superficial gas velocity, surfactant dosage and separation sequence of Fe³⁺ and Cl⁻ on the enrichment ratio and removal rate of FeCl₃ were investigated. The experimental results show that, under the optimum conditions, the removals of FeCl₃ approached to 60.5%, enrichment ratio reached 1.7. Compared with the other surfactants, this technology will not introduce new acid radical ions and metal ions in the aqueous solutions and provides a basis for a new method of removing salt by foam fractionation.

Keywords: dodecylbenzenesulphonic; (1-hexadecyl)trimethyl ammonium hydroxide; foam fractionation; desalination

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