

RESEARCH NOTES

超声场对氢键缔合体系解吸平衡的影响研究

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摘要 Effects of ultrasound on intensification of separation process were investigated through the experiment of desorption equilibrium behavior. Tri-butyl phosphate (TBP) on NKA-X resin and phenol on a solvent impregnated resin, CL-TBP resin, were used for desorption processes. The desorption rate was measured with and without ultrasound. Desorption equilibrium was studied under various ultrasonic power densities or thermal infusion. Results showed that the desorption rate with ultrasound was much higher than that with normal thermal infusion. Both ultrasound and thermal infusion broke the desorption equilibrium existed at room temperature. However, after the systems were cooled down, the amount of solute desorbed in the liquid phase in the presence of ultrasound was much higher than that at the temperature corresponding to the same ultrasound power. It is proved that the initial desorption equilibrium was broken as a result of the spot energy effect of ultrasound.

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Effect of Ultrasound on Desorption Equilibrium

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Abstract Effects of ultrasound on intensification of separation process were investigated through the experiment of desorption equilibrium behavior. Tri-butyl phosphate (TBP) on NKA-X resin and phenol on a solvent impregnated resin, CL-TBP resin, were used for desorption processes. The desorption rate was measured with and without ultrasound. Desorption equilibrium was studied under various ultrasonic power densities or thermal infusion. Results showed that the desorption rate with ultrasound was much higher than that with normal thermal infusion. Both ultrasound and thermal infusion broke the desorption equilibrium existed at room temperature. However, after the systems were cooled down, the amount of solute desorbed in the liquid phase in the presence of ultrasound was much higher than that at the temperature corresponding to the same ultrasound power. It is proved that the initial desorption equilibrium was broken as a result of the spot energy effect of ultrasound.

Key words

[ultrasound](#); [sorption equilibrium](#); [desorption](#)

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