

THERMODYNAMICS

双亲分子在油水界面的协同效应: Monte Carlo模拟研究

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摘要 Amphiphile-oil-water system is complicated. The real behavior of amphiphile in the interface is still unknown despite that this behavior is very important in determining the stability of emulsion system. In this paper, the interface properties of amphiphile at oil-water interface were investigated by a square-lattice model Monte Carlo simulation method. The synergistic effect was found for hydrophobic and hydrophilic amphiphile mixture systems; and the synergistic effect disappears or was weakened as the amphiphile at the interface region became dilute with the increasing of temperature.

关键词 气-液界面, 蒙特卡洛模拟, 增效作用, 两性分子

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Synergistic Effect of Amphiphiles at Oil-Water Interface: By Monte Carlo Simulation

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Abstract Amphiphile-oil-water system is complicated. The real behavior of amphiphile in the interface is still unknown despite that this behavior is very important in determining the stability of emulsion system. In this paper, the interface properties of amphiphile at oil-water interface were investigated by a square-lattice model Monte Carlo simulation method. The synergistic effect was found for hydrophobic and hydrophilic amphiphile mixture systems; and the synergistic effect disappears or was weakened as the amphiphile at the interface region became dilute with the increasing of temperature.

Key words oil-water interface; Monte Carlo simulation; synergism; amphiphile

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