

CTAB水溶液表面的吸附动力学

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摘要 用最大气泡压力法测定了十六烷基三甲基溴化铵(CTAB)水溶液的动态表面张力,研究了CTAB水溶液表面吸附的动力学及其影响因素。结果表明,吸附过程由初始的扩散控制经混合控制过渡到势垒控制。扩散控制吸附速率快,时间短;势垒控制速率慢,时间长,吸附势垒一般为 $4\sim 10\text{kJ}\cdot\text{mol}^{-1}$ 。温度升高,动态表面张力减小,但吸附机理不变;无机盐或醇类的加入对势垒值影响不大,但对扩散控制步骤的影响较大。

关键词 [吸附](#) [动力学研究](#) [溴化十六烷基三甲铵](#) [表面张力](#)

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Adsorption kinetics of cetyltrimethylammonium bromide at the air/water interface

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Abstract Maximum bubble pressure method (MBPM) was used to determine the dynamic surface tension of aqueous solution of cetyltrimethylammonium bromide (CTAB). Adsorption kinetics of CTAB at the air/water interface has been studied. Effects of temperature, concentration of CTAB, additives on the adsorption kinetics were also investigated. The results show that at beginning, the adsorption process is controlled by a diffusion step; whereas toward the end, it changes to an activation mechanism with an adsorption barrier of between 4 and 10 $\text{kJ}\cdot\text{mol}^{-1}$. It seems that this barrier does not depend on the temperature and additives. Additives influence diffusion process significantly.

Key words [ADSORPTION](#) [KINETIC STUDY](#) [SURFACE TENSION](#)

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