

研究论文

AOT/异辛烷/水微乳液中结晶紫与AOT相互作用的热力学研究

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摘要 用紫外-可见分光光度法在不同温度下测定了结晶紫(CV)在双-2-乙基己基硫代琥珀酸钠(气溶胶OT或AOT)为表面活性剂的W/O微乳液中的吸光度.

根据结晶紫和AOT在微乳液水滴界面缔合的模型对实验数据进行处理, 结果表明, 随着微乳液中水与AOT的摩尔比 w 的减小和温度的升高, 结晶紫缔合度增大,

根据不同温度下的缔合平衡常数计算了反应的热力学函数, $\Delta_r G_m$, $\Delta_r H_m$ 和 $\Delta_r S_m$.

关键词 [微乳液](#) [气溶胶OT](#) [异辛烷](#) [结晶紫](#) [缔合常数](#) [Gibbs自由能](#) [焓](#) [熵](#)

分类号

Thermodynamics of the Interaction between Crystal Violet and Aerosol OT in Aerosol OT/Isooctane/Water Microemulsion

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Abstract The absorbance measurements of CV (4,4',4''-tris(dimethylamino)triphenylmethyl chloride or crystal violet) in W/O microemulsions with surfactant sodium bis(2-ethylhexyl)sulfosuccinate (Aerosol OT, AOT) at various temperatures have been carried out by the UV-Vis spectrophotometer. An association model has been used to analyze the experimental data to obtain the association constant of CV and AOT at various temperatures. It was estimated that about up to 73% CV was associated by AOT, which resulted in a significant reduction of the effective concentration of CV and retarded the reaction of alkaline fading of CV in the microemulsion. The values of thermodynamics functions of association $\Delta_r G_m$,

$\Delta_r H_m$ and $\Delta_r S_m$ have also been calculated from the association constants at various temperatures.

Key words [microemulsion](#) [Aerosol OT](#) [isooctane](#) [crystal violet](#) [association constant](#) [Gibbs free energy](#) [enthalpy](#) [entropy](#)

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