عنوان مقاله:

Experimental Measurement of Equilibrium Surface Tension of an Aqueous Solution of Polyethylene Glycol and a Surfactant

محل انتشار:

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خلاصه مقاله:

A device is designed and constructed for measuring the equilibrium surface tension of water and a number of other solutions. The measured equilibrium surface tension of water, as a reference fluid, has good consistency with literature data. Moreover, the equilibrium surface tension of the aqueous solutions of surfactants and polymer composed of sodium dodecyl sulphate (SDS), Triton CG-۱۱۰, dimethyl di-dodecyl-ammonium bromide (DDAB), and polyethylene glycol (PEG) with different molecular weights of ۲۰۰, ۳۰۰, ۴۰۰, and ۶۰۰, as well as that of the ternary solutions of SDS/PEG/water, Triton CG-۱۱۰/PEG/water, and DDAB/PEG/water at ۲۹۳.۱۵ K and atmospheric pressure are measured. The equilibrium surface tension of the aqueous solutions of PEG ۶۰۰ are measured at ۲۹۶.۱۵ K because PEG ۶۰۰ is solid at ۲۹۳.۱۵ K. The measured data are compared with the predictions of thermodynamic models, and the results show that Redlich-Kister (RK) model has the lowest error in predicting the experimental data.

کلمات کلیدی:

Equilibrium Surface Tension, Surfactants, polyethylene glycol, Thermodynamic Models