

عنوان مقاله:

Thermodynamic of Micellization and Free Energy Contribution for Aggregation of Cleavable Gemini Surfactants

محل انتشار:

دوازدهمین سمینار سالانه الکتروشیمی ایران (سال: 1395)

تعداد صفحات اصل مقاله: 2

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خلاصه مقاله:

The physicochemical properties and thermodynamic of micellization for ester-containing cationic Gemini surfactants, dodecyl esterquat Gemini and dodecyl betainate Gemini were investigated using tensiometry and conductometry over the temperature range 298 K to 318 K. The changes in Gibbs free energy, enthalpy and entropy of the micellization have been determined at different temperatures. An enthalpy–entropy compensation effect was observed and the plot of enthalpy–entropy compensation exhibit excellent linearity. In this paper to model the aggregation behavior of Gemini surfactants in aqueous solutions and to explore the origin of their very low CMCs and their unusual ability to generate large micelles when the spacer length is small, expressions for various contributions to the free energy of micellization were developed according to Nagarajan model. The following expression was used for various contributions to the free energy of micellization: {} The experimental free energy also obtained from surface tension and conductance measurements. There was a good agreement between theoretical free energy (equation 1) and the experimental free energy showing the Nagarajan model can good predict the thermodynamic of micellization for these .Geminis

کلمات کلیدی:

Gemini surfactants, Thermodynamic of micellization, Enthalpy–entropy compensation, free energy

لینک ثابت مقاله در پایگاه سیویلیکا:

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