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气相二氧化硅/季铵 Gemini 表面活性剂稳定的泡沫体系

孙小祥 陈宇 赵剑曦*

(福州大学化学化工学院胶体界面化学研究所，福州 350108)

Foams Stabilized by Fumed Silica Particles with a Quaternary Ammonium Gemini Surfactant

SUN Xiao-Xiang CHEN Yu ZHAO Jian-Xi*

(*Institute of Colloid and Interface Chemistry, College of Chemistry and Chemical Engineering, Fuzhou University, Fuzhou 350108, P. R. China*)

*Corresponding author. Email: jxzhao.colloid@fzu.edu.cn; Tel: +86-591-22866338.

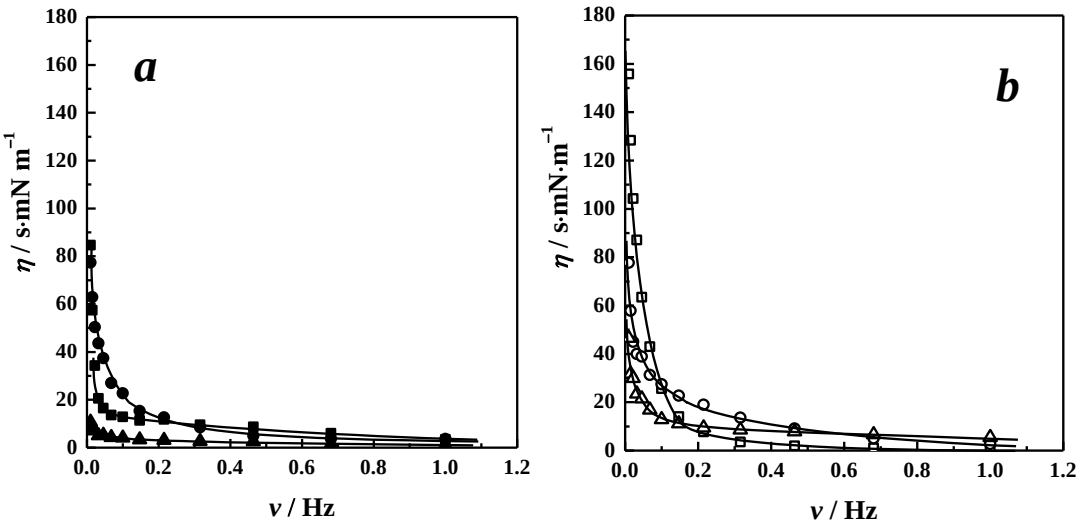
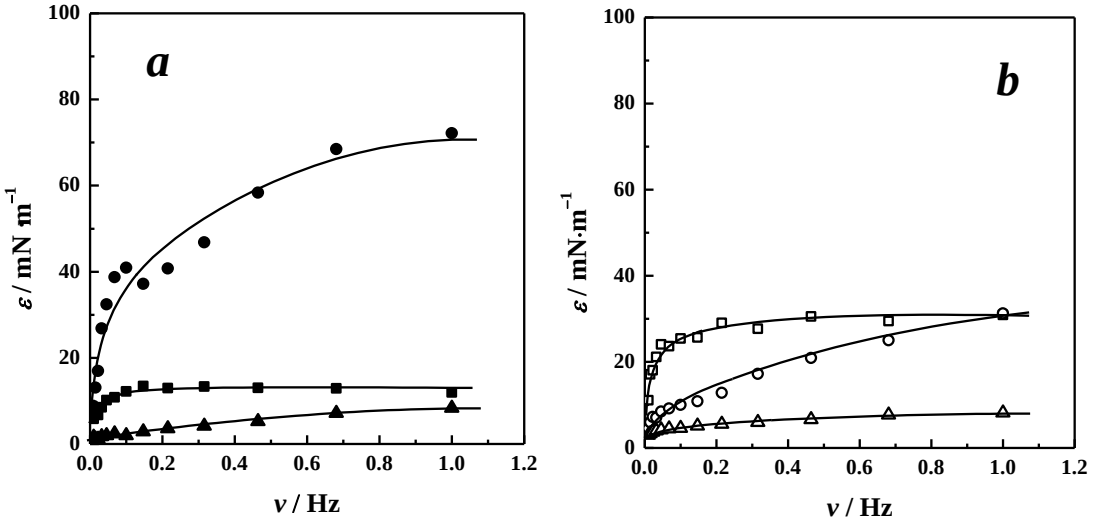


图 **S1** F-SiO_2/12-2-12(***a***)和单纯 12-2-12(***b***)的界面扩张粘性η随频率 ν 变化的实验曲线

Fig. S1 The experimental plots of interfacial viscosity (η) for F-SiO_2/12-2-12 (***a***) and 12-2-12 (***b***) aqueous solutions as a function of frequency (ν) at 25 °C. Symbols represent different surfactant concentrations: log(C /mmol·L^{-1}) = –1.00(square), –0.63 (circle), 0.30 (triangle)



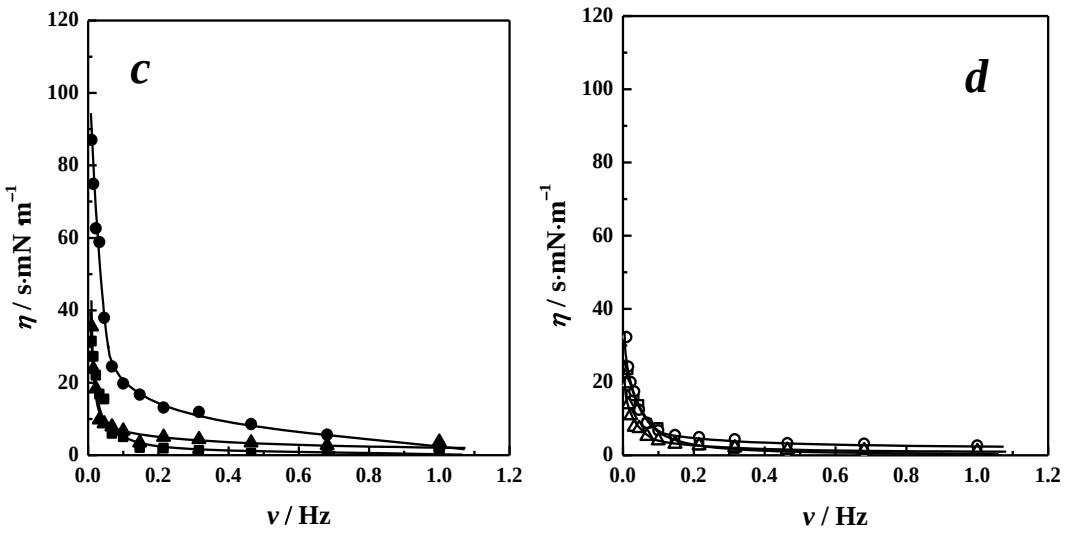


图 **S2** F-SiO_2/12-6-12(***a***, ***c***)和单纯 12-2-12(***b***, ***d***)的界面扩张弹性ε(***a***, ***b***)和扩张粘性η(***c***, ***d***)随频率 *v* 变化的实验曲线

Fig. S2 The experimental plots of interfacial elasticity (ε) for F-SiO_2/12-6-12 (***a***) and 12-6-12 (***b***) and interfacial viscosity (η) for F-SiO_2/12-6-12 (***c***) and 12-6-12 (***d***) aqueous solutions as a function of frequency (*v*). Symbols represent different surfactant concentrations: log(*C*/mmol·L^{-1}) = –1.60 (square), –1.00 (circle), –0.40 (triangle)

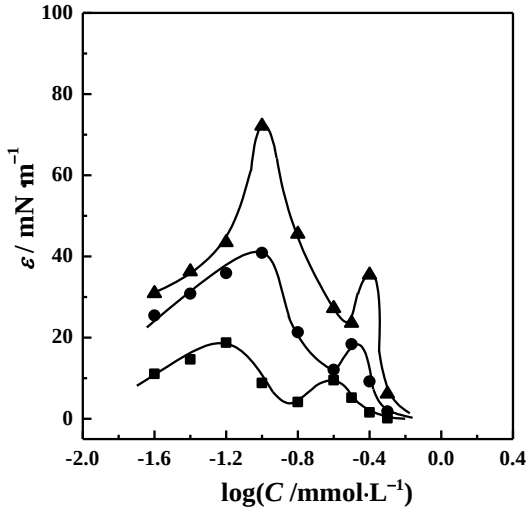


图 **S3** F-SiO_2/12-6-12 的界面扩张弹性ε与表面活性剂浓度的半对数图

Fig. S3 Semilogarithmic plots of dilational interfacial elasticity (ε) for F-SiO_2/12-6-12 as a function of surfactant concentration. Symbols represent *v*/Hz = 0.01 (square), 0.10(circle), 1.00(triangle)