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Molecular Dynamics Study of the Foam Stability of a Mixed Surfactant System with and without Calcium Ions XIAOZHEN YANG, WENHONG YANG, Institute of Chemistry, CAS, INSTITUTE OF CHEMISTRY, CAS TEAM — Foam stability performance of a mixture surfactant system with and without calcium ions, including linear alkylbenzene sulfonate (LAS) and sodium dodecyl sulfate (SDS), has been studied by molecular dynamics. Microscopic interaction analysis reveals that the fraction of free calcium ions, X_f , in film system indicates the extent of the foam stabilities when X_f is in different calcium ion zones. In the system without ions, we found the variable of the surfactant tail mass out of water film, W , is indicator of foam stability. Performance of the mixture system predicted here was supported by experiments.

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