

The effects of mixed anionic–nonionic surfactants, Tween40–SDS (sodium dodecyl sulfate), Tween40–SDBS (sodium dodecylbenzene sulfonate), Tween20–SDS and Tween20–SDBS, on the solubility and volatilization of naphthalene from static aqueous solutions were investigated. The experiment results indicated that mixed anionic–nonionic surfactants can solubilize naphthalene synergistically, which was resulted from the reduction in critical micelle concentration (CMC) of the mixed surfactant and the increase in micellar partition coefficient (K_{mc}) of naphthalene between micelles and aqueous phase. The synergistic effects of mixed surfactants resulted in further reduction in volatilization of naphthalene than that induced by single surfactant. A positive linear correlation was found between the synergistic solubilization ratio (ΔS) and the synergistic inhibitory capacity on naphthalene volatilization (ΔC) in the presence of mixed surfactants.