

研究论文

水在 $C_{12}\text{-EO}_x\text{-C}_{12}\text{-2Br}$ /正己醇/正庚烷 W/O 微乳中的状态

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摘要 以 FT-IR 方法研究了水/ $C_{12}\text{-EO}_x\text{-C}_{12}\text{-2Br}$ /正己醇/正庚烷形成的 W/O 微乳中水的状态. 结果表明, 其中的水存在 4 种状态, 分别为阳离子头基结合水、反离子结合水、类似本体的水以及束缚在微乳栅栏层中的水. 由解卷积技术分解 FT-IR 谱图, 进而获得每个表面活性剂分子对应于这 4 种状态水分子的数目 n_{N^+} , n_{Br^-} , n_b 和 n_f . 随着水含量 (W_0) 增加, n_b 急剧增大, n_{N^+} 少许上升, 而 n_f 和 n_{Br^-} 维持不变, 这说明微乳水核逐渐长大, 且在所考察 W_0 范围内, 表面活性剂头基解离度保持不变.

关键词 [水/ \$C_{12}\text{-EO}_x\text{-C}_{12}\text{-2Br}\$ /正己醇/正庚烷](#) [W/O 微乳](#) [FT-IR](#) [水状态](#)

分类号

States of Water in the W/O Microemulsion Formed in $H_2O/C_{12}\text{-EO}_x\text{-C}_{12}\text{-2Br}/n\text{-Hexanol}/n\text{-Heptane}$

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Abstract The states of water in the W/O microemulsions formed in $H_2O/C_{12}\text{-EO}_x\text{-C}_{12}\text{-2Br}/n\text{-hexanol}/n\text{-heptane}$ systems have been investigated by Fourier transform infrared spectroscopy (FT-IR). The results showed that there existed four states of water in the microemulsions, which were head-group-bound water, Br^- -bound water, bulklike water and trapped water in the interface of the microemulsion water, respectively. The n_{N^+} , n_{Br^-} , n_b and n_f , which represented respectively the numbers of the water corresponding to the above four states per surfactant molecule, were obtained by a deconvolution technique. With increasing water content W_0 , n_b was increased rapidly but n_{N^+} increased a little, whereas n_{Br^-} and n_f were kept almost constant. These indicated that the water pool of the microemulsion grew gradually and the degree of the counter-ion dissociation was kept unchanged over the range of the ex-aminated W_0 .

Key words [H₂O/ \$C_{12}\text{-EO}_x\text{-C}_{12}\text{-2Br}\$ /n-hexanol/n-heptane](#) [W/O microemulsion](#) [FT-IR](#) [water state](#)

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