

聚乙二醇在 Triton X-114/正辛烷/正丁醇/水反相微乳液中的增溶研究

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摘要 研究了加入聚合物对TritonX-114/正辛烷/正丁醇/水组分体系相态的影响。利用次甲基蓝(MB)作为吸附探针,而以恶唑烷氮氧自由基(5-doxyIsteaIricacid,5-DNS)作为自旋探针,研究了加入聚合物对TX-114/正辛烷/正丁醇/水反相微乳液的微结构影响。结果表明:聚合添加使W/O微乳液区缩小,而液晶区则更靠近水一端(增溶更多水)。该反相微乳液中存在三种状态水:结合水、束缚水、体相水。加入聚合物可以替代先前存在于TX-114聚氧乙烯链上的一些水分子,使其微极性减小,而且使表面活性剂分子在界面上的排列更为松散,本研究结果对探讨聚合物对W/O微乳液微结构的影响及此类体系在其它方面应用有重要意义。

关键词 [聚乙二醇](#) [正辛烷](#) [正丁醇](#) [水](#) [微乳](#) [增溶作用](#) [TRITONX-114](#)

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The study on the solubilization of poly ethylene oxide in Triton X- 114/n-octane/n-butanol/water system

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Abstract The effect of addition of polyethylene oxide (PEO) on the phase behavior of the TX-114/n-octane-n-butanol/water system is reported. It has been found that the addition of PEO results in a decrease in the amount of solubilized water in W/O microemulsion region, and an increase in the amount of solubilized water in lamellar liquid crystalline phase. The W/O microemulsion has been studied by using methylene blue as an absorption probe and 5-doxyIsteaIric acid (5-DNS) as a spinning probe. The result clearly indicates that there are three types of water present in the polar core: bound water, which interacts directly with ethylene oxide chains of the surfactant; trapped water, which is located between the ethylene oxide groups, with high mobility; bulk-like water, which forms at high water contents. In the presence of PEO, the polymer molecules can replace some bound water or trapped water molecules, which leads to a looser arrangement of ethylene oxide groups of the surfactants at the interface. This structure may induce the formation of higher aggregates.

Key words [POLYGLYCOL](#) [NORMAL OCTANE](#) [N-BUTANOL](#) [WATER](#) [MICROEMUSION](#) [DISSOLVING](#)

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