

Characterization of Tristyrylphenol Ethoxylate Surfactants

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Surfactants are needed in many applications and have different requirements for each use. A significant proportion of surfactant use occurs in industry, where highly specific types of surfactants are employed. ^[1]

Tristyrylphenol ethoxylates are nonionic surfactants with an extended aromatic part and a variable length of ethoxylated chain. They are primarily used in agricultural applications. ^[2] Though they are also used or could be useful for other purposes like for dyes and pigments ^[3], petrochemistry or polymer/materials science. Due to their aromatic part, these surfactants could enhance the solubilization of other aromatic molecules. The structure of those molecules not only causes hydrophobicity, but also π -stacking interactions, which hinder solubilization. For molecules with similar structures to those of the tristyrylphenol ethoxylates, these surfactants could break up stacking interactions, and the hydrophilic part could then solubilize the molecules in water.

Not much is known about these tristyrylphenol ethoxylate surfactants in current literature, so their basic characterization and solubilization mechanisms are being studied. This could improve our understanding of these surfactants and expand their range of applications. Basic characterization includes analytical methods such as UV-Vis, NMR and DLS measurements, foamability and foam stability, surface tension, rheological measurements, colloidal structure determination, and binary and ternary phase diagrams with hydrophobic and aromatic solutes.

Keywords:

surfactant, tristyrylphenol ethoxylate, π -stacking, solubilization

References:

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