Replacement of Alkyl Phenol - Derived Surfactants in Emulsion Polymerisation

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Alkyl phenol derivatives, particularly the nonionic ethoxylates, have come under environmental scrutiny both in terms of their biodegradability (and the aquatic toxicity of the metabolites of biodegradation) and suspected oestrogenic activity. The latest data on this subject will be briefly reviewed.

Alternative nonionics to nonyl phenol ethoxylates have been studied either to find the most cost effective replacements or to investigate whether any performance advantages are possible. In the latter, it has been shown that in specific polymers (e.g. vinylacetate - VeoVa), fatty alcohol ethoxylates based on long chain unsaturated alcohols afford improved water resistance and scrubability of the final films. Structural differences between alkyl phenol and fatty alcohol ethoxylates are briefly described.

The replacement of both alkyl phenol ether sulphates and alkyl phenol ether phosphates is also discussed. In the case of a particular alkyl phenol ether sulphate, fatty alcohol ether sulphate replacements have been produced, but these can vary considerably in poly(oxyethylene) content depending on the co-polymer considered. Again structural differences between alkyl phenol and fatty alcohol ether sulphates are discussed.