

## **Keeping Particle Stabilised Emulsions Stable with Hydrophobic Additives**

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While it is easy to make a particle-stabilised emulsion of water-in-oil using polystyrene latex particles as a stabiliser, it is not necessarily straight forward to control this process or the emulsion properties when other components are added to either the oil or the aqueous phase. We seek to understand the effect that various electrolytes and surface active compounds (dispersed in both phases) have on the stability of the particle layer at the oil-water interface, and how this influences the stability of high volume fraction water-in-oil emulsions. Specifically, we have investigated how the stability and order of polystyrene particles at the dodecane-aqueous solution interface is affected by electrolytes with varying surface activity and hydrophobicity (from ammonium bromide to tetrapentylammonium bromide), and by various surface active compounds, dispersed either in the oil or aqueous phase, with a range of head groups and tail lengths. These results are then correlated with the physical properties of the emulsions, such as yield stress and flow behaviour.