An example of the preferred Abstract format, as of June 2013.

Abstract

Hypothesis
Aggregation in self-assembly systems is influenced by interactions and molecular structure, which dictate packing and surface curvature. Inclusion of small molecule surface active hydrotropes (primitive surfactants) is expected to influence intermolecular interactions and packing in surfactant-stabilized microemulsions, thereby affecting dispersed domain structure. Hence, it should be possible to tune system stability and properties, and also drive structural transitions in microemulsions by variation of hydrotrope chemical structure.

Experiments
Water-in-oil microemulsions stabilized by Aerosol-OT were formulated including hydrotrope additives as a function of concentration and water content. A systematic study was performed using a matrix of hydtrotropes having closely related molecular structures: being either homologous series, or structural relatives such as cyclic aromatic or unsaturated groups. Phase diagrams were established, and nanodomain structures were studied using small-angle neutron scattering (SANS).

Findings
Added hydrotropes induced sphere-to-cylinder micellar transitions in the microemulsions, and the extent of micellar growth was seen to depend on hydrotrope chemical structure. The phase stability and cylinder micelle length could be accounted for considering hydrotrope-AOT tail interactions. This is the first report of hydrotrope-induced axial elongation of water microemulsions, showing that is possible to use hydrotropes to tune properties of microemulsions, such as viscosity.

(192 words excluding subheadings)

The Abstract above has been rewritten into a newly preferred structure incorporating subheadings, based on an example paper given below. The Abstract for that paper was published under the previous Guidelines for Authors, which did not stipulate subheadings in Abstracts.

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Cylinder to sphere transition in reverse microemulsions: The effect of hydrotropes

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The effect of hydrotropes on the geometry of reverse water-in-oil AOT-microemulsions is investigated as a function of water content, and hydrotrope additive architecture. SANS reveals that hydrotropes induce cylindrical morphologies which transition to ellipsoidal and then spherical geometries with increasing water content (*w*). The length of the elongated particles appeared to show some

dependence on the hydrotrope-AOT tail compatibility, which is also reflected in the phase behaviour of these systems. This is the first report of hydrotrope-induced axial elongation of water microemulsions in the oil phase.