

Poster Presentation

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Phase behavior of 3,4,5-tris(alkyloxy)benzenesulfonates with a tetramethylammonium cation

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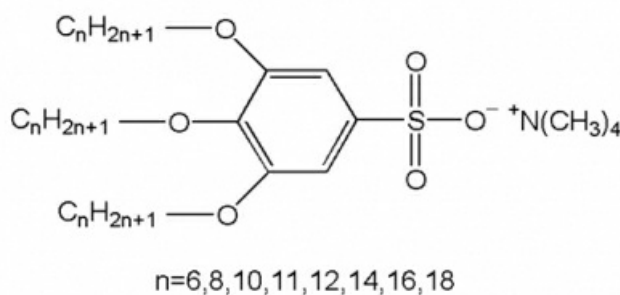
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Biomimetic selfassembling systems based on synthetic liquid crystals is a promising field of supramolecular chemistry because it helps to determine and understand the principles of creating supramolecular structures of preferred arrangement [1]. A recently developed class of "cunitic" selforganising monodendrones based on 3,4,5-tris(alkyloxy)benzenesulfonic acid attracts great attention because of its rich phase behavior [2]. In this work the dependence of phase behavior of 3,4,5-tris(alkyloxy)benzenesulfonates with a tetramethylammonium ion in the focal group on varying the length of the alkyl chain is determined during selforganisation in bulk.

Phase behavior of 3,4,5-tris(alkyloxy)benzenesulfonates was studied by the methods of differential scanning calorimetry, polarizing optical microscopy, small and wide angle X-ray scattering. It was found that 3,4,5-tris(alkyloxy)benzenesulfonates form a variety of phases such as smectic layers, ordered and disordered two-dimensional columnar mesophases, cubic mesophases of the plastic crystal type.

[1] Mülhaupt R. , Macromolecular Chemistry and Physics. Special Issue: Bioinspired Macromolecular Chemistry. 2010. V. 211. P. 121–126.

[2] Shcherbina M.A., Bakirov A.V., Yakunin A.N., Percec V., Beginn U., Möller M., Chvalun S.N. , Soft Matter 2014, 10, pp 1746–1757



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