Tristriazolotriazines: Mesomorphism and tangential-radial Isomerisation

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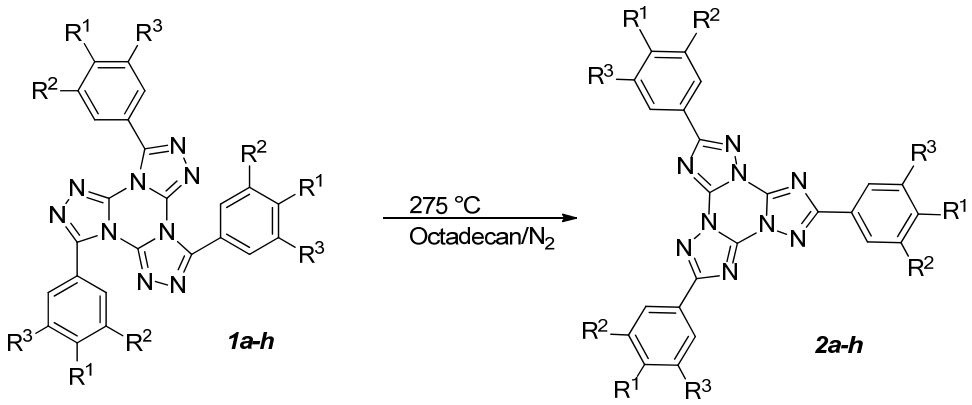
Tristriazolotriazines (TTT) **1a-h**, fluorescent conjugated molecules, were prepared via Huisgen reaction[1]. Phenyl rings are tangentially attached to the TTT, torsion angles are 12 – 82°,[2] resulting in a paddle-wheel shape. Whereas triphenyl-TTT has a m.p. > 300 °C, alkoxy chains provoke broad mesophases, typically Col_{hex}[3, 4] and a complex superstructure.[5] Contrary to earlier reports,[3] these DLCs are not thermostable.

A rearrangement of the TTT unit occurs in three successive steps, bringing substituents from tangential positions in **1** to radial positions as in **2**. *r*-TTTs are nearly planar, dihedral angles are 6° or less. Extension of molecular diameter and planarization have a huge impact on the thermotropic properties: higher melting points are typical, complete destruction of mesomorphism,[6] but also the transformation of non-mesomorphous *t*-TTTs to discotic liquid crystals have been observed.



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