

tangential-radial Isomerization of liquid-crystalline tristriazolotriazines

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The threefold Huisgen reaction[1] of cyanuric chloride and alkoxyphenyl tetrazoles gives tristriazolotriazines **1a-h**, fluorescent π -conjugated molecules. The phenyl rings are tangentially attached tristriazolotriazine with torsion angles of 12 – 82°, [2] giving a paddle-wheel structure to these discotic molecules. The melting point of triphenyl-TTT is above 300 °C, but two or three alkoxy chains result in the formation of broad mesophases, typically with a hexagonal columnar structure[3, 4] and often 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 the phenyl substituents from the tangential positions in **1** to radial positions as in **2**. The new *r*-TTT is nearly planar, dihedral angles are 6° or less. The extension of the molecular diameter and the planarization have a huge impact on the thermotropic properties: higher melting points are typical, complete destruction of mesomorphism, but also the transformation of non-mesomorphous *t*-TTTs to discotic liquid crystals have been observed.

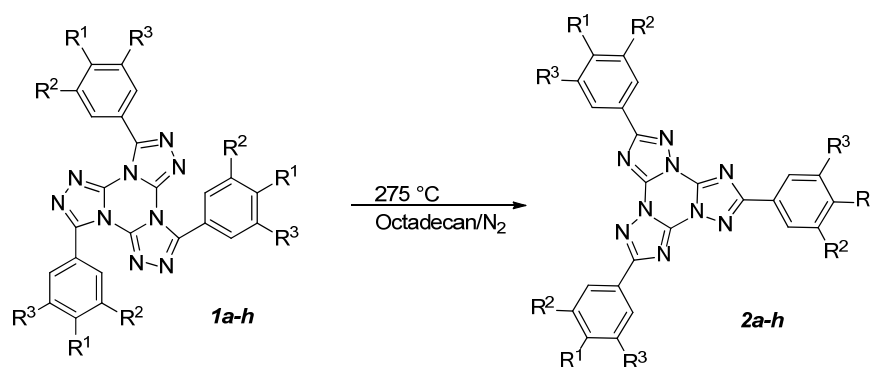


Fig. 1: Thermal tangential-radial isomerisation of tristriazolotriazines

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