

Liquid silyl derivative of beta-cyclodextrin

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Abstract

© ISUCT Publishing. Per-6-O-(tert-butyl)(diphenyl)silyl- β -cyclodextrin was found to form metastable liquid phase, which is unusual for cyclodextrin mono-derivatives under ambient conditions. Also, it can exist in a solid amorphous state as a stable molecular glass. Conditions and parameters of phase transitions between crystal, glassy and liquid forms were determined. The studied compound is soluble in various solvents. Crystallization from its solutions and overcooled melt results in formation of two different polymorphs. The liquid mono-derivative of beta-cyclodextrin is amphiphilic and preferable for application in solutions, in pure form or even as a solvent for substrates with various structures.

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Keywords

Cyclodextrin, Molecular glass, Polymorphism, Silyl derivatives, Thermal analysis, X-ray powder diffraction

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