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研究论文

酰肼衍生物的凝胶化行为

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摘要 *N*,*N*-(5-烷氧基-1,3-苯二甲酰)-*N*′,*N*′-二(4-甲基苯甲酰)二肼系列化合物(A_n)能在苯、甲苯、硝基苯及氯仿等有机溶液中形成有机凝胶. X射线衍射实验及扫描电子显微镜观察的结果显示, 在凝胶状态下, A_n分子聚集成层状有序排列, 并进一步堆积形成纤维网络结构. 红外光谱及核磁氢谱研究证实了分子间氢键码酰肼衍生物形成凝胶的驱动力. 另外, 侧链上烷基链的长度对凝胶的能力及凝胶的稳定性影响较大, 而对于凝胶的形貌及分子聚集的结构影响不大.

关键词 酰肼衍生物 有机凝胶 凝胶因子 氢键

分类号 0631

Gelatinization Behavior Dihydrazide Derivatives

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Abstract It was found that compound *N*,*N*-(5-alkoxyl-1,3-dicarboxylic benzene)-*N*′,*N*′-di(4-methylbenzoyl) dihydrazide(A_n) could form thermoreversible gels in appropriate organic solvents, such as benzene, toluene, nitrobenzene, chloroform *etc*. whose concentrations were well below 1%(mass fraction). SEM observations and X-ray diffraction results indicate that the molecules self-assembled into the fibrous aggregates and kept a layer conformation in their gel states. FTIR and ^{1}H NMR studies confirm that the hydrogen bonding played a key role in the formation of these supra-structures and was considered as the driving force. And it was also found that the length of lateraly substituted alkoxy chain in the compounds could affect their gels formation ability and transition temperature, while their gel morphologies and structures weren't affected by the length of lateraly substituted alkoxy chain.

Key words Dihydrazide derivative Organogel Gelator Hydrogen bond

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