

偶氮苯及其衍生物是性能良好的介晶基团,含偶氮苯的分子有广泛的用途。文章报道了 ω -(4-甲氧基-4'-偶氮苯氧)溴代烷(ZOn, 亚甲基数 n 为2~6)的制备,所合成化合物的结构由红外光谱分析(IR)和核磁共振(¹H NMR)测试确定。示差扫描量热(DSC)测试及偏光显微镜(POM)观察显示,产物ZO2未表现出液晶性,ZO3呈双向液晶性,呈近晶相;ZO4、ZO5、ZO6呈单向液晶性,为向列相。它们的织构随 n 的增大而逐渐改善,ZO6的偏光织构最完善。

关键词: 偶氮苯 溴代烷 液晶性

Synthesis and Mesogenic Behaviours of 1-Bromo- ω -(4-methoxyazobenzene- 4'-oxy) AlkaneHE Chang-hai^{1,2}, ZHANG Chao-can¹

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Abstract:

Azobenzene and its derivatives are widely used mesogenic groups. In this paper, 1-bromo- ω -(4-methoxyazobenzene-4'-oxy)alkanes(ZOn) have been synthesized in which the number of methylene unit varies from 2 to 6. The structures of the synthesized compounds were confirmed by IR and ¹H NMR spectroscopy. The differential scanning calorimetry (DSC) measurement and polarizing optical microscope (POM) observation showed that the resulting compounds exhibited thermotropic liquid crystalline mesomorphism except for ZO2. ZO3 displayed smectic phase, and ZO4, ZO5 and ZO6 showed nematic phase. The texture pattern became more perfect with the increase of methylene number.

Keywords: azobenzene bromoalkanes mesogenic behaviour

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