

Comparison of Dielectric Properties of Three Alkyl and Alkoxy Azoxybenzenes (*n*AOBs and *n*OAOBs, *n* = 5, 6, 7) in the Isotropic and Liquid Crystalline Phases

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Results of dielectric studies of three 4,4'-di-*n*-alkyl-azoxybenzenes (*n*AOB) and 4,4'-di-*n*-alkoxy-azoxybenzenes (*n*OAOB), *n* = 5, 6 and 7, are presented. The *n*AOB compounds exhibit positive, and the *n*OAOBs negative dielectric anisotropy in the nematic phase. In the smectic A phase of 7AOB the anisotropy changes its sign, whereas in the smectic C phase of 7OAOB it persists negative; moreover, in the latter case the perpendicular component of the permittivity increases with respect to the value of the nematic phase. This may be due to parallel dipole-dipole correlation of the perpendicular components involved by the layer arrangements in both smectic phases. For all substances a systematic decrease of the permittivity components with chain length was observed. Different types of smectic order in the 7th members of both series are discussed in relation to the mean-field theory developed recently by Govind and Madhusudana. The dielectric relaxation times and activation enthalpies characterizing the molecular rotation around the principal inertia axes are given.

Key words: Liquid Crystals; Dielectric Properties; Alkyl- and Alkoxy-Azoxybenzenes.