

Dielectric Studies of Smectogenic Members of the 4'-alkyl-4-cyanobiphenyl (*n*CB) Homologous Series

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Results of dielectric studies of smectogenic members of the *n*CB (4'-alkyl-4-cyanobiphenyl, $n = 9 \div 12$) homologous series are presented. The dielectric relaxation measurements were performed in the isotropic (Is) and smectic A (S_A) phases. The relaxation times characterizing the molecular rotations around the short axes (the low frequency, l.f., process) were established for both phases. In the Is phase the high frequency process connected with the molecular rotations around the long axes was also determined. The l.f. relaxation times were analysed using the Arrhenius and Bauer activation equations, which yielded the activation enthalpy ΔH and activation entropy ΔS . All results were analysed together with the literature data on the shorter members of the homologous series as well as on 14CB recently published. The ΔH and ΔS values show typical odd-even alternation that is especially well seen for the shorter members. In the Is phase the l.f. relaxation times are related to the viscosity data measured recently by Jadżyn et al.

Key words: Liquid Crystal; Smectic; Dielectric Relaxation; Cyanobiphenyls.