

Dielectric Studies of Inter- and Intramolecular Motions in the Nematic and Isotropic Phases of 7CP5BOC

Stanisław Urban, Bo Gestblom^a, and Roman Dąbrowski^b

Institute of Physics, Jagellonian University, Reymonta 4, 30-059 Cracow, Poland

^a Institute of Physics, Uppsala University, S-75121 Uppsala, Sweden

^b Institute of Chemistry, Military Academy of Technology, 00-908 Warsaw, Poland

Reprint requests to Prof. St. U.; Fax: 0048-126337086; E-mail: ufurban@cyf-kr.edv.pl

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The dielectric relaxation of 7CP5BOC (2-chloro-4-heptylphenyl 4-pentylbicyclo-[2,2,2]octan-1-carboxylate) in its isotropic and nematic phase has been studied. The substance has a negative dielectric anisotropy. The complex dielectric permittivity was measured in the frequency range 10 kHz – 3 GHz with the aid of an impedance analyzer and a time domain spectroscopy (TDS) method. The relaxation time, activation enthalpy and dielectric increments, characterizing the rotation of the molecules about the principal inertia axes, were obtained. It was found that the relaxation process connected with rotations about the long axis can be split into two independent motions of molecular moieties around the

C–O bond in the $\text{--}\overset{\text{O}}{\underset{\parallel}{\text{C}}}\text{--O--}$ bridging group.