

Dielectric Spectroscopy of Solutions of Some Alkylammonium Salts in Chloroform and 1-Octanol

R. Elsebrock and M. Stockhausen

Institut für Physikalische Chemie der Universität Münster, D-48149 Münster, Germany

Reprint requests to Prof. M. St.; Fax: (+0251) 8323441

Z. Naturforsch. **55a**, 629–636 (2000); received April 13, 2000

Dielectric loss spectra between 1 MHz and 36 GHz have been measured at 20°C for solutions of hexadecyl trimethylammonium bromide and chloride, tetrahexylammonium bromide and tetrabutylammonium bromide in chloroform and 1-octanol (three solutes per solvent) at moderate and high concentrations. The discussion is aimed at identifying relaxation processes involving ions. Describing the relaxational part of the spectra (after subtraction of the conductivity contribution) by a sum of spectral components, the lowest frequency component can be attributed to the solute in all cases. Its concentration dependence is indicative of two ionic relaxation processes differing in physical nature. The solvent is partly involved in those processes; moreover a structure breaking effect is likely to occur in case of the alcoholic solvent. The results are also discussed in comparison with a molten alkylammonium salt and with solutions of this and of inorganic salts.

Key words: Dielectric Relaxation; Electrolyte Solutions; Ionic Aggregation.