Determination of Conductivities and Transfer­ence Numbers of NaBr and NaJ in n-Propanol at 25 °C by Use of the Radioisotope Method

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In n-propanol the limiting ionic conductance of Na+ was found to be 10.36 cm² Ω⁻¹ mol⁻¹ at 25 °C from conductivity- and transference measurements of NaBr and NaJ by use of the radioisotope method.

In order to split up equivalent conductivities of actinides into the corresponding ionic mobilities in nonaqueous solutions, transference numbers of Na+ were determined in the systems NaBr/n-propanol and NaJ/n-propanol at 25 °C within a concentration range of 10⁻¹ n to 2·10⁻³ n. Using these data the variety of conductance data of tetraalkylammonium- and alkali halides in n-propanol¹⁻³ were split up into limiting single ion conductances.

Using Co as indicator the boundaries at higher concentrations were localized by the ordinary optical version of the moving boundary method, those at lower concentrations by use of our radioisotope method⁴, the following indicator solution being labelled with Co-60.

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¹ D. F. Evans and P. Gardam, J. Phys. Chem. 72, 3281 [1968].
⁴ G. Marx and D. Hentschel, Talanta 16, 1159 [1969].