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Ispitivanje ispravnosti Tinct. aurantii Ph. Jug. II. pomoću direktne ultravioletne spektrofotometrije

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Utvrđivanje porijekla opija pomoću apsorpcijske spektrofotometrije u ultravioletu (III)

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World's Smallest Orthoflow Cracker

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DISSERTATIONES

DCC-6 (Univ. Zagreb) 537.36:541.182

Electrokinetic Studies in Dispersed Systems

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The electrokinetic potential (EKP) of the model substance of the ionogenic type, silver iodide, was studied. The experimental techniques applied were streaming potential measurements and electroosmosis. Both techniques were modified for measurement with small quantities of the precipitated material forming the diaphragm, and the measurements performed under minimum possible external forces applied. The standard error of the computed value of the EKP was found to be about 5% for streaming potential measurements, and about 7% for electroosmosis.

The EKP of silver iodide precipitates in aqueous solutions of neutral electrolytes has been found to be determined by the charge and the concentration of the counter ion. It has been found that there are broad regions of concentrations of the reversible electrode potential determining ions (RPD) — about five orders of ten — in which, all the other factors constant, the EKP remained constant. The influence of the RPD ions has been found to be important in a certain narrow critical concentration range only. The influence of some aliphatic straight chain amines and acids (surface active ions) on the EKP of the silver iodide precipitates has been found to resemble to the influence of the RPD ions. Surface active ions reverse the sign of the EKP at a critical concentration. Below and above this concentration they exhibit no influence on the EKP. The magnitude of the EKP has been found to be dependent only on the concentration and charge of the counter ions even in the presence of surface active ions.

The measurement of the EKP of the silver iodide precipitates in mixed solvents, containing either acetone, methanol or dioxane in water revealed the constancy of the EKP if the silver iodide precipitate was negatively charged by iodide ions in solution. The shift in the zero point of the EKP was found to be large and dependent on the difference in dipole moment of the added solvent molecule and water. Of the three solvents studied acetone exhibits the largest influence on the EKP, dioxane an intermediate, methanol practically none.

A discussion of the physical significance of the electrokinetic potential is given in view of recent theoretical developments in colloid chemistry. A conclusion has been set up, that any discussion based on some »true« or »real« value of the EKP is futile since there are many experimental facts which controverse the existing theories. It has been concluded also, that there is a need for new theoretical approaches. Next to this the need is emphasised for expressing the influence of liquid media on the EKP in terms of concentration or activities of RPD ions, surface active ions, neutral electrolytes and the solvent components distinctly.

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1. Electrokinetic Studies in Dispersed Systems

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Dielectric constant
Dipole moment
Dyspersed systems
Electrokinetics
Electroosmosis
Ions, counter
— , neutral electrolyte
— , potential determining
Precipitates
Quartz
Silver iodide
Surface active agents
Zeta potential