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Electrokinetic Potentials at Liquid Surfaces

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THE EFFECT OF GELATIN ON THE SOLUBILITY OF THALLOUS SALTS IN WATER

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The solubilities of thallous salts were determined in various concentrations of solutions of iso-electric gelatin by saturating the gelatin solution with the salt at 40°C., filtering, and analyzing the solution for thallium and nitrogen content. From these analyses the concentrations of gelatin, water and salt were calculated.

The salts used were thallous chloride, sulfate and thiocyanate. In every case the solubility of the salt was increased by increasing the concentration of gelatin, the relative amount of change depending on the anion of the salt used. The relative change of solubility was least for the sulfate and greatest for the thiocyanate. The order of effect agreed with the Hofmeister series of anions.

Four possible explanations were suggested: (1) adsorption of the salt by gelatin; (2) a decrease in the activity coefficients of the ions due to the presence of the gelatin; (3) the presence of "bound water" having a solvent power greater than that of ordinary water or (4) the solvent power of the gelatin itself.

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ELECTROKINETIC POTENTIALS AT LIQUID SURFACES

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Aqueous solutions of potassium chloride were allowed to flow through air. The solutions were from 10^{-1} N. to 10^{-7} N. The hydrostatic pressure was from 17 to 22 cm. of solution. The flow was vertical and laminar, through a circular aperture in a thin platinum disc on to a second platinum disc. The diameter of the aperture was 0.05 cm. The discs served as electrodes. The potential difference was measured with a vacuum tube potentiometer. The floating grid method was used, so the potential difference was measured with essentially no current flow. The values obtained

were similar to existing data on the streaming potential of such solutions through glass tubes and through cellulose diaphragms.

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THE PREPARATION AND ANALYSIS OF MONOBROMOAMINE, DIBROMOAMINE, MONOCHLOROAMINE, AND NITROSYLCHLORIDE

GEORGE H. COLEMAN AND GILBERT E. GOHEEN

Monobromoamine and dibromoamine were prepared in ether solution by the reaction of bromine with ammonia in ether solution at the temperature attainable with a mixture of dry ice and acetone.

An ethereal solution of monochloroamine in concentration of one mole per liter was prepared by the action of sodium hypochlorite on ammonia.

Pure liquid nitrosyl chloride was prepared by the action of dry hydrogen chloride with nitrosyl sulfuric acid.

Apparatus and methods for the preparation, purification, and analysis of these substances were illustrated and described.

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BINARY SYSTEMS WITH ACETAMIDE

ROBERT BUTIKOFER AND BEN H. PETERSON

The system acetamide — propionamide was investigated by the freezing point method. The solubility curve obtained showed a eutectic at approximately 0.5 mol. fraction. The experimentally determined solubility curve corresponds well with the ideal solubility calculated from the ideal equation.

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