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A Study of the Potentials and the Activities of the Metals in Zinc Amalgam Cells

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Nebraskan gumbotil, the maximum turbidity for each clay is found at almost identically the same pH, viz., 10.5.

STATE UNIVERSITY,
  IOWA CITY.

A STUDY OF THE POTENTIALS AND OF THE ACTIV-ITIES OF THE METALS IN ZINC AMALGAM CELLS

J. N. PEARCE AND J. F. EVERSOLE

The electromotive forces of cells containing zinc amalgam electrodes in a saturated solution of zinc sulphate, have been determined at 18°, 25° and 30°. The concentration of the zinc in the amalgams varied from $N = 0.000302$ to that of a two-phase amalgam, $N = 0.0638$.

On the assumption that the amalgams form perfect solutions, the theoretical potentials have been calculated for a large number of cells in which each electrode is connected with the most dilute amalgam. The deviations between the observed and calculated values agree fairly well with the values obtained by Richards and Forbes.

Using the Hildebrand equation, and assuming that $K = 11.2$ for the equilibrium, $2 Zn \rightleftarrows Zn_2$, we have calculated the potentials of the various cells and have found a close agreement between the observed and calculated values; especially is this true as the amalgams approach infinite dilution.

The temperature coefficients of the cells have been determined and from these we have calculated the increase in free energy, in heat content, and in entropy accompanying the cell reaction.

Finally, the activities of the zinc and the mercury in the various amalgams have been calculated.

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THE INFLUENCE OF SOLVENT UPON THE OPTICAL ROTATION OF DI-ETHYL TARTRATE

T. J. HEBERT AND J. N. PEARCE

A determination of the specific rotation of di-ethyl tartrate in various mixed-solvents has been made at 25° and 30°, using two different concentrations of the ester. The solvents used were ethyl alcohol, methyl alcohol, benzene and toluene and the binary mixt-