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The Determination of Oxidation-Reduction Potentials from Equilibrium Data

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0.01 M ferrous sulfate solution that had been buffered to $^{p}H = 5$ were aerated for different periods of time. After aeration each portion was titrated with potassium permanganate solution to determine the portion of iron still unoxidized. From the data thus obtained it was learned that the relation between the duration of oxidation and the percentage of iron oxidized could be expressed by the following equation.

$$\ln T = 0.032\,x - 0.01$$

In this equation x is the percentage of iron oxidized by aeration in T hours.

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THE DETERMINATION OF OXIDATION-REDUCTION POTENTIALS FROM EQUILIBRIUM DATA

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The determination of the oxidation-reduction potentials is more reliable from equilibrium data than from electromotive force data. The potential of the ferric-ferrous electrode was calculated from the experimentally determined equilibrium constant of the reaction:

$$2\,Fe(ClO_4)_3 + 2Hg \rightleftarrows 2\,Fe(ClO_4)_2 + Hg_2(ClO_4)_2$$

The perchlorates, mercury, and perchloric acid are better suited for the determination of the equilibrium constant than the nitrates, silver and nitric acid employed by A. A. Noyes and Braun (J. Am. Chem. Soc. 34, 1016, 1912). The true equilibrium constant of the reaction was determined by suitable experimental procedure and subsequent mathematical and graphical analysis.

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FURTHER STUDIES ON THE UTILIZATION OF AGRICULTURAL WASTES

HENRY GILMAN, R. E. BROWN, J. B. DICKEY, A. P. HEWLETT, AND G. F. WRIGHT

The syn and anti oximes of delta-benzyl furfural have been examined in connection with sweet tasting compounds. The syn is sweeter than the anti compound, and also sweeter than saccharine.