(*Continued from page 286*)

INFORMATION RETRIEVAL

Key Words: Mass Transfer-H, Transport-H, Rates-H, Reactions-I, Electrochemical-, Redox-, Polarization-I, Electrodes-J, Mass Transfer-I, Sources-I, Sinks-I, Walls-I, Boundaries-I, Fluid Flow-I, Flow-I.

Abstract: The average and instantaneous rates of mass transfer to a small sink on a wall have been measured using a polarized electrode as the transfer area. An electrochemical redox reaction whose rate is limited by mass transfer is employed. The technique also can be used to study flow patterns in the vicinity of a wall.

Reference: Reiss, L. Philip, and Thomas J. Hanratty, **A.I.Ch.E. Journal, 8,** No. 2, p. 245 (May, 1962).

Key Words: Mass Transfer-H, Absorption-H, Ion Exchange-H, Exchanging-H, Transport-I, Rates-I, Liquid Phase-I, Transferring-I, Glycerin-A, Alcohols-A, Polyhydric Alcohols-A, Water-E, Velocities-F, Absorption-G, Rates-G, Equations-J, Unsteady State-J, Beds-J, Packed-, Ion Exchange-, "Amberlite"® IR-120 Ion Exchange Resin-J, "Amberlite"® Ion Exchange Resins-J, Ion Exchange Resins-J, Plastics-J, Polymers-J.

Abstract: A study of the rate of absorption of glycerol from dilute aqueous solutions has been made in small fixed beds of ion exchange resin. The resin used was Amberlite IR-120, ranging in size from 0.210 to 1.190 mm. Solution flow rates were varied from 0.45 to 22.20 ml./(sq. cm.) (sec.). The operation is described by a simple linear rate equation and the usual transient column material balance relations. Curves predicted by this analysis are compared with experimental breakthrough data.

Reference: Vassilliou, Basil, and Joshua S. Dranoff, **A.I.Ch.E. Journal, 8,** No. 2, p. 248 (May, 1962).

Key Words: Extraction-H, Columns (Process)-H, Rotating Disk Contactor-, Performance-I, Contacting-I, Rotation-I, Circulation-I, Dispersions-I, Globules-I, Emulsions-I, Drops (Droplets)-I, Capacity-I, Holdup-I, Diffusion-I, Axial-, Liquid Phase-I, Mass Transfer-I, Coefficients-I, Size-I.

Abstract: The principles used in analyzing the performance of RDC liquid extraction columns are discussed. The behavior of a swarm of drops in the rotating field is found to be adequately represented in most respects by single-drop dynamics, which leads to the tested relations for countercurrent capacity, limiting drop holdup, axial diffusion of the continuous and dispersed phases, and point mass transfer coefficients that are independent of column size effects.

Reference: Strand, C. P., R. B. Olney, and G. H. Ackerman, **A.I.Ch.E. Journal, 8,** No. 2, p. 252 (May, 1962).

Key Words: Agitation-H, Power-H, Dispersing-H, Dispersions-I, Air-A, Water-E, Liquids-E, Mixtures-E, Correlations-I, Speed-F, Diameter-F, Size-F, Surfactants-F, Power-G, Turbines-J, Stirrers-J, Agitators-J.

Abstract: The dispersion of air in liquids by means of a Mixco six-bladed flat blade turbine has been studied. Power data are presented in the form of a logarithmic plot of actual power consumed as a function of speed, impeller diameter, gas flow rate, and impeller power characteristics. Data for the dispersion of air in pure water are compared with data on the dispersion of air in a 50% by volume batch of carbon tetrachloride in water, in a suspension of alundum in water, and in a 0.1% by weight mixture of a surfactant in water.

Reference: Michel, B. J., and S. A. Miller, **A.I.Ch.E. Journal, 8,** No. 2, p. 262 (May, 1962).

Key Words: Flow-H, Fluid Flow-H, Transport-H, Turbulence-I, Laminar Flow-I, Flow-I, Non-Newtonian-, Suspensions-I, Kaolin (Clay)-A, Clays-A, Thorium Dioxide-A, Titanium Dioxide-A, Oxides (Inorganic)-A, Water-E, Tubes-J, Pipes-J, Correlations-I, Models-J, Friction Factors-J.

Abstract: Turbulent flow friction factors have been determined for flocculated suspensions of thoria, kaolin, and titania in tubes ⅛- to 1-in. diameter. The volume fraction of solids was varied from 0.042 to 0.23. Non-Newtonian laminar flow data arbitrarily were fitted with the Bingham plastic model to obtain yield stress values. Two types of behavior in turbulent flow were observed depending on the value of the yield stress. Both sets of data have been correlated using the Blasius relation with the coefficient and exponent given in terms of the laminar flow properties and the volume fraction of solids.

Reference: Thomas, David G., **A.I.Ch.E. Journal, 8,** No. 2, p. 266 (May, 1962).

ERRATUM

In their article "Holdup and Pressure Drop with Gas-Liquid Flow in a Vertical Pipe," which appeared in the December, 1961, issue of the *A.I.Ch.E. Journal,* G. A. Hughmark and B. S. Pressburg use the factor x to correlate the volume fraction of liquid holdup. x is defined by Equation (2):

$$x = 6 \times 10^4 \left(\frac{W_L}{W_G}\right)^{0.9} \frac{\mu_L^{0.19}\,\sigma^{0.025}\,\rho_G^{0.70}\,\mu_G^{2.75}}{G^{0.485}\,\rho_L^{0.72}}$$

Figure 3 plots the holdup against this factor. Since all the data shown were obtained with air as the gas, the factor $6 \times 10^4\,\mu_G^{2.75}$ reduces to 1.0 for $\mu_G =$ 0.018 centipoise and does not appear in the abscissa.

The first equation in the summary on page 681 should be made identical with Equation (2), either by including the constant 6×10^4 or by changing $\mu_G^{2.75}$ to $(\mu_G/\mu_{air})^{2.75}$.

Computer Program Abstracts

Readers of the *A.I.Ch.E. Journal* who are interested in programing for machine computation of chemical engineering problems will find in each issue of *Chemical Engineering Progress* abstracts of programs submitted by companies in the chemical process industries. Collected by the Machine Computation Committee of the A.I.Ch.E., these programs will be published as manuals where sufficient interest is indicated. The following abstracts have appeared this year:

CEP (April, 1962) p. 86

Frequency Function Computations (087)
Tower Vibration (091)