(*Continued from page 428*)

Graphite oxidation at low temperature, Effron, Edward, and H. E. Hoelscher, **A.I.Ch.E. Journal, 10,** No. 3, p. 388 (May, 1964).

Key Words: A. Graphite-1, Carbon-1, Temperature-9, Oxidation-9, Combustion-9, Kinetics-9, Activation Energy-9, Reaction Order-9, Boudouard Reaction-9, B. Oxygen-1, Surface Complex-2, Partial Pressure-6, Pore Diffusion-9, Chemisorption-9. C. Carbon Monoxide-2, Carbon Dioxide-2, Production-7.

Abstract: Graphite oxidation studies have been carried out in oxygen and in air between 400° and 530°C. An analytical system capable of detecting product carbon dioxide and carbon monoxide at concentrations less than 10 parts/million was developed and used during the work. Kinetic results are compared with literature data obtained under similar conditions. The effect of bulk and surface properties of the graphite on oxidation rate and product distribution is considered. A reaction mechanism is proposed which reconciles much of the published data and the results reported herein.

The roles of capillary wicking and surface deposits in the attainment of high pool boiling burnout heat fluxes, Costello, C. P., and W. J. Frea, **A.I.Ch.E. Journal, 10,** No. 3, p. 393 (May, 1964).

Key Words: Boiling Burnout-6, Surface Coatings-6, Capillary Wicking-6, Heater Size-7, Burnout Heat Flux-8, Saturated Pool Boiling-5, Tap Water-5, Distilled Water-3, Surface Deposit-3, Silica-4, Fiberglas Wicking-6, Wetability-7, Critical Heat Flux-.

Abstract: Data are presented to show how the burnout heat flux varies with the presence of capillary wicking, surface deposits, and heater size. Cylindrical and semicylindrical heaters 1/16- to ½-in. diameter were tested, and some data are presented for larger flat plate heaters. It is shown that surface deposits which improve wetability can produce two to threefold increases in burnout heat flux and that smaller heaters give higher burnout heat fluxes. Fiberglas wicking provides a surface deposit which improves wetability. The wicking, when properly arranged, also constrains the vapor columns arising from a heater so that it behaves as a heater of smaller diameter. Heat fluxes of over 1,200,000 B.t.u./hr. sq. ft. were obtained with saturated pool boiling in the presence of wicking.

Gas absorption accompanied by a large heat effect and volume change of the liquid phase, Chiang, S. H., and H. L. Toor, **A.I.Ch.E. Journal, 10,** No. 3, p. 398 (May, 1964).

Key Words: A. Gas Absorption-8, Heat Effect-6, Volume Change-6, Diffusion Equation-1, Energy Equation-1, Mathematic Solution-2, Semi-Infinite Liquid Phase-5. B. Absorption-8, Ammonia-1, Water-1, Rate-9, Experimental -10.

Abstract: A solution is obtained to the equations of diffusion and energy for the absorption of a gas into a semi-infinite liquid accompanied by a large heat effect and a large volume change of the liquid phase.

Experimental data for the absorption of ammonia into water at short contact times are in agreement with the solution which indicates that in this system the effects of the heat generation and volume change on the rate of mass transfer almost cancel.

Measurement and correlation of turbulent friction factors of thoria suspensions at elevated temperatures, Eissenberg, D. M., **A.I.Ch.E. Journal, 10,** No. 3, p. 403 (May, 1964).

Key Words: Turbulence-, Pressure Drop-7, Pumping-10, Non-Newtonian-, Flocculated-, Thoria-1, Suspension-1, Temperature-6, Concentration-6, Velocity-6, Correlation-9, Extrapolation-9, Reynolds Number-10, Dispersed-10, Viscosity-10.

Abstract: Turbulent friction factors of non-Newtonian flocculate thoria suspensions were measured at elevated temperatures and correlated with a Reynolds number based on the measured Newtonian friction factor vs. Reynolds number relationship. A decrease in friction factor at high concentrations of thoria was ascribed to a change in the velocity profile.

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D = diffusion coefficient of dichromate ion, sq. cm./sec.
d_p = particle diameter, cm.
k = mass transfer coefficient, cm./sec.
N_{Re} = Reynolds number based on relative fluid-particle velocity, d_pU/ν, dimensionless
N_{Sc} = Schmidt number, ν/D, dimensionless
N_{Sh} = Sherwood number, kd_p/D, dimensionless
t = time, seconds
U = relative fluid-particle velocity, cm./sec.
V_s = solution volume, cc.

Greek Letters

ν = kinematic viscosity, sq. cm./sec.
$\Delta\rho$ = density difference between particle and fluid, g./cc.

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ERRATUM

Equation (25) of the article "Catalytic Effectiveness in Multicomponent and Variable Diffusivity Systems" by John B. Butt, which appeared on page 707 of the September, 1963, issue of the *A.I.Ch.E. Journal* was printed incorrectly both in the original article and on page 144 of the January, 1964, issue of the *A.I.Ch.E. Journal*. This equation should read

$$c_{i\lambda 1} = c_{iA} + c_{AA}\left(\frac{w_i}{a}\right)\left(\frac{D_{AA}}{D_{iA}}\right)\frac{1}{\cosh\left(\Lambda\sqrt{\frac{k}{D_{AA}}}\right)}\left[\cosh\left(\lambda_1\sqrt{\frac{k}{D_{AA}}}\right)-\cosh\left(\Lambda\sqrt{\frac{k}{D_{AA}}}\right)\right]$$