Reactions of ethylene with triethyl aluminum: effect of operating variables and kinetics of reaction, Albright, Lyle F., and Clayton S. Smith, **AIChE Journal, 14,** No. 2, p. 325 (March 1968).

Key Words: A. Ethylene-1, Triethyl Aluminum-1, Ziegler Catalyst-1, Nickel-10, 6, Catalyst-10, Homogeneous-0, Kinetics-8, Reactions-7, 8, Solubility-8, Equilibrium Constants-8, Agitation-6, Solvent-6, Pressure-6, Temperature-6, 1-Butene-2, Butenes-2, Olefins-2, Mass Transfer Coefficients-8.

Abstract: Reactions of ethylene with triethyl aluminum were investigated at temperatures from 80-200°C. and at pressures up to 135 lb./sq.in.abs. The triethyl aluminum was used in solvent mixtures at concentrations up to 10%. The main gaseous product was 1-butene and higher alkyl groups slowly built up on the catalyst. The kinetic data obtained over a wide range of operating variables have been used to postulate the mechanism of the reaction.

Effect of orientation on the settling characteristics of cylindrical particles, Blumberg, Paul N., and C. Michael Mohr, **AIChE Journal, 14,** No. 2, p. 331 (March 1968).

Key Words: A. Settling-7, 8, Particles-9, Cylindrical-0, Orientation-6, Stokes Regime-9, Fluid-9, Velocity-7, Drag-7, 8, Wall-6.

Abstract: The characteristics of cylindrical particles settling in the Stokes regime in a bounded fluid are discussed. Applicable theory is reviewed and experimental data showing the effect of orientation on the terminal velocity are presented.

A composite phase plane for tubular reactor stability studies, Wang, Frank S., and D. D. Perlmutter, **AIChE Journal, 14,** No. 2, p. 335 (March 1968).

Key Words: A. Composite phase plane-2, Stability Regions-2, Tubular Reactor-10, Plug Flow-1, Adiabatic-10, Nonadiabatic-10, Constrained Integration-2, Distributed Parameter-1.

Abstract: A composite phase plane is introduced in order to describe geometrically the transients of a distributed parameter system with only one physical dimension. Its intrinsic features are discussed and compared with those of the ordinary phase plane. For the plug flow tubular reactor an equivalence is established between bounds on the reactor transients and the confinement of their projections on the composite phase plane. A constrained integration method is developed, which enables one to find a region of stability for an adiabatic reactor, and a related technique is demonstrated for a nonadiabatic case. A hypothetical reactor system is analysed numerically to illustrate the application.

The synthesis of system designs: 1. Elementary decomposition theory, Rudd, Dale F., **AIChE Journal, 14,** No. 2, p. 343 (March 1968).

Key Words: A. Design-8, Plants-2, 9, Processes-2, 9, Synthesis-8, Systems-2, Optimization-8, Decomposition-10, Simplification-8, Mathematics-10, Economics-8, Subdividing-10.

Abstract: A system synthesis principle is proposed by means of which processes can be composed to perform an assigned task. Synthesis is performed by the sequential decomposition of the design problem into subproblems which eventually reach the level of available technology.

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ERRATUM

In "Effect of Wall Deposit on Photochlorination Kinetics" by Dariusz Ziolkowski, A. E. Cassano and J. M. Smith [Vol. 13, No. 5, pp. 1025-1028 (1967)]. several errors should be corrected.

On page 1026, the sentence directly above Figure 2 which begins "The fraction transmission θ_λ ....; this should be changed to read: The percent transmission T_λ ....

In Figure 2 the ordinate of the figure should be T_λ instead of θ_λ

Table 2, in the next to last column, the heading should be changed from $\theta_\lambda \times 10^2$, to $T_\lambda \times 10^2$.

The definition of θ_λ in the Notation should be:

θ_λ = fractional transmission of light through filter solutions, $T_\lambda / \underset{\lambda}{\Sigma} T_\lambda$

Addition to the Notation:

T_λ = % transmission (through filter solutions) of light of wave length λ.