to treat automotive exhausts and other more conventional oxidation and partial oxidation catalysts to hydrogenation/dehydrogenation catalysts and Ziegler-Natta polymerization catalysts.

While much useful information is conveyed in the book, this reviewer would be remiss in his obligations to the profession if he did not point out that the book would have benefited significantly if additional effort had been focused on the editing and proofreading aspects of its production. It contains a large number of grammatical errors. The lack of subject-verb agreement was evident numerous times in the second half of the book. Nonetheless I regard the book as a welcome addition to my bookshelf. □

NONIDEAL FLOW EXPERIMENT

Continued from page 77.

perimental one, however, are very close.

To evaluate the degree of deviation from the ideal flows we calculate the variance of the distribution, the dispersion number and the number of tanks in series that represents the system. These values are

$$\sigma_\theta^2 = 0.1105$$

$$D/uL = 0.059$$

$$N = 9 \text{ tanks}$$

Again, these values indicate to us that there is a smaller amount of dispersion from plug flow than in the above case.

The theoretical mean residence time is in this case

$$\tau_t = \frac{V}{Q} = \frac{3153}{142} = 22.20 \text{ min}$$

This is above the experimental mean residence time, 20.67 min. In this case the fluid leaves the system before the time predicted theoretically. □

NOTATION

C	dimensionless tracer response curve to an idealized pulse input
c	concentration, mol/l
D	dispersion or axial dispersion coefficient, m^2/s
D/uL	dimensionless dispersion number
E	exit age distribution function, dimensionless
L	length of vessel, m
N	number of equal-sized backmixed flow tanks
Q	volumetric flow, cm^3/min
t	time, min
τ	equals V/Q, reactor holding time or mean residence time of fluid in a flow vessel, min
τ_t	theoretical mean residence time, min
u	velocity, m/s
V_m	volume of the stirred tank, l
V_p	volume of the tubular vessel, l
θ	equals t/τ, reduced time, dimensionless
σ^2	equals σ_t^2/τ^2, variance of a tracer curve or distribution function in θ units, dimensionless
σ_t^2	variance in time units, min^2

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ChE books received

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Modeling and Identification of Dynamic Systems, N. K. Sinha, B. Kuszta; Van Nostrand Reinhold Co., Inc., New York 10020; 334 pages, $32.50 (1983)

Laser Processing and Analysis of Materials, W. W. Duley; Plenum Publishing Corp., New York 10013; 463 pages, $59.50 (1983)

Phosphates and Phosphoric Acid, Pierre Becker; Marcel Dekker, Inc., New York 10016; 608 pages, $95.00 (1983)

Hydraulic Pumps and Motors, Raymond P. Lambeck; Marcel Dekker, Inc. New York 10016; 176 pages, $24.95 (1983)

Advances in Drying, Volume 2, Arun S. Mujumdar; Hemisphere Publishing Corp., New York 10036; 301 pages, $55.00 (1983)

Physicochemical Aspects of Polymer Surfaces, K. L. Mittal; Plenum Publishing Corp., New York 10013; Vol. 1, 580 pages, $75.00; Vol. 2, to page 1250, $85.00 (1983)