900° and then steam-treated for 24 hours at 750°. A simple method is proposed to characterize activity of the catalysts in the subject cracking reaction. For the catalysts studied, the loss of activity following heat-treating is caused by a decrease of the surface area. On the other hand, the activity decrease occurring after steam-treating is due to decreases in both the surface area and in the intrinsic catalytic activity per unit of catalyst surface area.

Kinetics of Tritium Exchange in Steam-Hydrogen Reaction Over a Nickel Catalyst

By A. M. Taikhert, N. M. Morozov, and M. I. T'yomkeen

L. Ya. Karpov Physico-Chemical Institute

A study of kinetics of the isotopic exchange reaction, $HTO(g) + H_2 = H_2O(g) + HT$, was carried out over a porous nickel and a nickel on chromium oxide catalysts. Validity of the earlier-developed kinetic equation, $HDO(g) + H_2 = H_2O(g) + HD$, was substantiated.

Distribution of Temperatures and Reactant Concentrations in Heterogeneous Catalytic Reactors with Internal Heat Exchangers

By Yu. A. Sokoleensky

Moscow Institute of Chemical Machine Construction

The problems encountered in design calculations are discussed, covering four types of catalytic reactors equipped with internal heat exchangers. The formulas presented express reactor temperature distributions in terms of the corrseponding reactant concentration distributions. With the aid of these formulas, the answer is found by solving a two-equation system. This calculation method is characterized by rapid convergence and by good agreement with the operating factors of the subject units.