content, their concentration on the surface increases up to a plateau of maximum values.

In the catalysts with 0.1–90% Al_2O_3 content, catalytic activity of individual acid centers is, roughly, a fixed value, regardless of the catalyst methods of preparation and ratios of the components.

Kinetics of Steam-Methane Reaction on Nickel Surface

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A study of methane-steam reaction kinetics was made at 800°–900° in a recycle-continuous unit. Activation energy of this reaction is 31 kcals/mole. At equilibrium, the p_{CO_2}/p_{CO} ratios of the reaction products are in line (or smaller) with the corresponding concentrations of the reacting steam. The kinetic equation presented is based on a reaction scheme which assumes that decomposition of CH_4 to chemisorbable CH_2 radicals is the process limiting step.

Diffusion Kinetics of Chemical Reactions

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The product concentration distributions were determined for the solid-liquid first order reactions over the reacting surfaces localized within small volumes ($\rho_0 \ll R$); the distributions were also determined for the reactions with the rates so fast that the limiting product concentrations on a reacting surface are attained almost instantaneously. Some of the calculated results are compared with the results based on experimental data.

Mechanism and Kinetics of Catalytic Hydrogenation in Liquid Phase: Macrokinetics of Reduction Reactions Over Colloidal Palladium Catalyst

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A study was made of the effect of the type and intensity of mixing, catalyst concentration, reaction temperature, and nature of solvent—on the rates of reduction of cinnamic acid, allyl alcohol, and n-benzoquinone in presence of a colloidal palladium in polyvinyl alcohol stabilizer.

At the "ideal" displacement conditions, i.e. in absence of mixing, the hydrogenation reaction is catalyzed primarily by thin surface layers of the catalyst particles. The gradient of hydrogen concentration in each test solution was determined by layer-to-layer measurement of catalyst potential along the vertical axis of the reactor.

Notes:

T. J. Andree'yanova: Esterification in Liquid Phase of Acetic Acid with Ethyl Alcohol over Various Sulfonated Cationic Exchange Resins of KY-2 Type.

V. M. B'yelo'oosov, Ya. B. Gorokhovatsky, A. V. Gersheengoreena, M. Ya. Roobaneek: Adsorption Capacity and Reactivity of a Copper Oxide Catalyst in Oxidation of Structurally-Different Olefins.

L. P. Yer'yomeen, V. G. Shestakov, V. V. Boldir'yev: Automatic Vacuum-Actuated Thermal Balance.

S. M. Shein, L. A. Kozor'yetz, N. N. Vorojtzov: Displacement of Chlorine Attached to an Aromatic Ring—by an Amine Radical: Kinetics of o-Nitrochlorobenzene and of Trinitro-4-Chlorobenzene Trifluoride Reactions with Aqueos Ammonia.

V. N. Beeben, L. A. Kasatkeena: Variation of V_2O_5 Oxygen Mobility in Presence of Alkali Metal Salts.

V. I. Trofeemov, J. J. Chkhe'eedzé, N. Ya. Booben: Limiting Concentrations of the Radicals from Low Temperature Radiolysis of Aromatics.

R. I. Z'yusman, Yu. I. Nab'yerookheen, V. V. Voyevodsky: A Method to Determine Percentage of True Extinction of Stable Radicals.

L. G. Karakcheeyev: Properties of Silica-Alumina Catalysts.

V. S. Moozikantov, V. V. Popovsky, G. K. Bor'yeskov, N. I. Meekeechoor: Mechanism of Isotopic Oxygen Exchange on Vanadium Pentoxide.

E. V. Meekhey'yeva, N. P. Keiyer: Effect of a Constant Electric Field on Absorption Capacity of Germanium.

Letters to the Editor:

A. V. Mashkeena, T. S. Sookhar'yeva: Catalytic Dehydrocyclization of Sulfur-Containing Aliphatic Hydrocarbons.

Yu. A. Yershov, A. F. Lookovneekov, A. A. Batooreena: Decomposition of Polypropylene Hydroperoxide by Sunlight.

A. I. Shatenshtein, I. O. Shapeero, F. S. Yakoosheen, G. G. Eesa'yeva, Yu. I. Ranneva: Determination of Acidity of Organic Compounds by Measurement of Hydrogen Exchange Rates in Presence of Ammonia, Dimethylsulfoxide, and Cyclohexylamine.