mechanism is proposed for the oxidation and an equation is derived to calculate the reaction rate of the process.

The Kinetics of Para-Ortho Conversion of Hydrogen Over Various Metallic Catalysts

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The kinetics of para-ortho conversion of hydrogen were analyzed in operation over the catalysts with non-homogeneous surface. The kinetic equations derived are for a two-stage reaction scheme, assuming that the dissociated adsorbed particles form the surface-based intermediates at small, intermediate, and high surface coverages. The kinetic relationships obtained are compared with published kinetic data for the para-ortho conversion of hydrogen over various metallic catalysts.

Polymerization of Ethylene in the Presence of $VOCl_3$ — Al $(iso\text{-}C_4H_9)_3$ Catalyst

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Polymerization of ethylene was studied at a temperature of —50°, using a $VOCl_3$ — Al(iso-$C_4H_9)_3$ catalyst dissolved in n-heptane. The results show (a) a linear relationship between the reaction rate and the monomer concentration at the p_{C_2H} of 100–400 mm Hg and (b) a non-linear relationship between the polymer yields and the catalyst concentration. Activity of the catalyst is a function of the molal ratio of its components. Activation energy of the reaction at temperatures of —80° to 0° is 3.8 kcal/mol. Activity of the catalyst decreases with the on-stream time due to deactivating interaction of the active centers.

Effect of Poisons on Selectivity of Aluminum Oxide in Decomposition of n-Butyl Alcohol

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Regardless of the preparation method and of the heat treatment temperatures, the maximum value of the acid function, H_0, of the aluminum oxide samples tested is less than —8.2. Concentration of the acidic centers on the surface of the γ- and θ-alumina samples is approximately equal. The number of the centers on the surface is about 2.5 μ-equivalents/m^2 — as determined by the indicator method, and 1.2 μ-equivalents/m^2 — by a poisoning technique. Increasing the extent of decomposition of n-butyl alcohol, results in increased isomerization of α-butylene. At like conversion levels, the product distribution is independent of the NaOH content of the samples. The active sites on the surface of the aluminas are of equal acidic strength. The dehydration of the alcohol and the isomerization of α-butylene take place on the same acidic centers.

Investigation of Catalytic Properties of Organic Semiconductors Prepared by Thermal Dehydrochlorination of Polyvinylchloride

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Catalytic activity of a thermally dehydrochlorinated polyvinylchloride was determined at temperatures of 400°, 500°, and 700°. The data of catalytic decomposition of hydrazine, formic acid, and hydrogen peroxide served to construct a model for the reactions of this type. A clear-cut correlation was not uncovered between catalytic activity of polyenes and concentrations of the paramagnetic particles.

Kinetics of CO Oxidation Over a Modified Zinc Oxide Catalyst

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Oxidation of CO over "pure" and a modified zinc oxide catalysts was studied at temperatures of 300°–500° and the conditions precluding poisoning of the catalysts during the operations. The kinetics and activation energies of the reactions were determined.

A Mechanism of Decomposition of Vaporized Formic Acid Over Metallic Palladium

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A study of dehydrocyclization of formic acid was carried out on the surface of a palladium