correlation between catalytic activity and the chromium trioxide content is shown and possible reaction mechanism is described.

Kinetics of Liquid Phase Dehydrogenation of Isopropyl Alcohol

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Experimental data are presented covering kinetics of liquid phase dehydrogenation of isopropyl alcohol over a skeletal nickel catalyst in presence of an outside diffusion-retarding agent. The results over the diffusion-limited catalyst are compared with the earlier-published data on the unretarded catalyst.

Hydration of Tertiary Amylenes Over Cationite KY-2 and Nature of Concurrent Reactions

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The results of this investigation demonstrate that hydration, polymerization, and isomerization of tertiary amylenes do take place simultaneously in presence of the H-type cationite KY-2.

Polymerization of amylene, a side-reaction over the hydrated cationite, is the primary reaction over the dehydrated resin.

Various sulfocationites selectively catalyze hydration of tertiary amylenes in multicomponent mixtures of C_5 hydrocarbons, a fact advantageous in production of tertiary amyl alcohol. Prolonged use of KY-2 resin (288 hrs at 75°) to catalyze this reaction results in insignificant irreversible decrease of its exchange capacity (2.5%) and reduction in particle size.

Effect of Conditions of Preparation of Zinc Oxide Catalysts with and without Added Indium and Gallium Upon Catalytic Properties in Homomolecular Isotopic Oxygen Exchange Reaction

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The effect of conditions of preparation of zinc oxide-based catalysts upon catalytic activity were determined in the reaction, $^{16}O_2 + {}^{18}O_2 = 2\ {}^{16}O^{18}O$. The results show that increasing of ZnO calcination temperature increases its catalytic activity, apparently, as a result of increasing concentration of interstitial zinc.

Addition of indium in 0.25 and 0.5 atom per cent, followed by a 30-hour calcination at 850° decreases the homomolecular oxygen exchange rate. Addition of gallium in the like amounts has the same effect.

Raising the catalyst (ZnO + 0.5 at.% Ga) calcination temperature from 850° to 1200° decreases the apparent activation energy of the reaction from 40.1 to 24.5 kcal/mole.

Vapor Phase Catalytic Conversion of Acetylene: Mechanism and Kinetics of Catalytic Vapor Phase Hydrochlorination of Acetylene Over Supported Chlorides of Hg(II), Cd, Zn, Bi

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Kinetics of vapor phase catalytic hydrochlorination of acetylene was studied in a recycle-continuous unit. The catalysts used in this study were $MeCl_n$ salts [Me = Hg(II), or Cd, or Zn, or Bi] supported on activated AP-3 carbon and, also, the activated carbon containing HCl adsorbed on its surface.

The results of this kinetic study and published thermodynamic data on the formation of $MeCl_n$—C_2H_2—HCl complexes (1,2), provided a basis to formulate a mechanism for catalytic hydrochlorination of acetylene and to explain the deviations from the basic mechanism due to the differences in the catalytic activity of the added salts.

Yield Curve Equation of Continuous Equilibrium Sorption of Adsorbates by Adsorbent Beds

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An equation was derived and critically checked to express processing yields as linear isotherms in an equilibrium sorptive-chromatographic process, employing the frontal analytical technique.

To derive the equation a variant of a layer-to-layer method of calculation is proposed as the least laborious. The derivation involves use of a differential equation and of the S-function tables.

Solution of the yield curve equation indicates that the process of equilibrium sorption (chromatography) is characterized by "smearing out" of the dynamic front of a sorbed stream. The results to evaluate accuracy of the layer-to-layer method of calculation are presented. A method of quantitative treatment of experimental yield curves is described, involving determination of the adsorption coefficient.