furic acid shows that the relationship is necessarily complex. To derive from the observed data the correlations essential for evaluating the heats of protonization and the basic constants for styrene and phenyl dimethyl carbinol—requires taking into account all of the protolytic equilibria possible in the reaction.

The constants obtained in this study for styrene are compared with the like constants for 1,1-diphenyl ethylene.

General applicability of the correlations established in this study is also discussed.

Effect of Pressure on Redistribution of Hydrogen in Cyclohexane

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The thermodynamic calculations based on experimental data show that at low pressures redistribution of hydrogen in cyclohexane is accompanied by separation of the hydrogen. At a pressure of 10 atm the redistribution temperature is higher than at one atm.

Oxidation-Reduction Effects Upon Activity of Aluminochromate Catalysts. II. Oxidation of Catalysts

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Investigation of methods of regeneration of aluminochromate catalysts shows that the activity of regenerated catalysts depends on their Cr^{+6} content and that the activity can be controlled by regulating the concentration of oxygen in a regeneration gas. The results also show that activity of the aluminochromate catalysts promoted by various oxides is also correlatable with their Cr^{+6} content.

Kinetics of Heterogeneous Catalytic Oxidation of Maleic Anhydride

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The kinetics of catalytic oxidation of maleic anhydride over a vanadium-molybdenum catalyst was investigated at a broad range of operating temperatures and reaction component concentrations. The rate of catalytic oxidation of maleic anhydride is given by a first order equation with respect to the anhydride. The relationship between the temperature and the reaction rate constant is expressed by the equation, $\ln k = 7.27 - (12{,}500/RT)$.

The data obtained for reactions of this type by use of requisite empirical equations are reasonably accurate as long as the phase changes in the catalyst crystals are taken into account.

Heats of Activation in Decomposition of Ammonia Over Catalysts Differing in Chemical Composition. II. Cobalt-, Nickel-, Copper-, and Zirconium-Based Catalysts

By YU. N. ARTIUH, M. T. ROOSOV, AND O. A. STRIELTZOV

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Decomposition of ammonia was studied at atmospheric pressure over smooth-surfaced cobalt, nickel, copper, and zirconium catalysts in a recycle-continuous unit. The results show that specific activity of the Co, Ni, Cu, and Zr catalysts in this reaction decreases in the order mentioned; at the same time, the heats of activation over these catalysts also diminish in the following order: Zr, Co, Ni, Cu. Their specific activity changes with alteration of the interatomic distances, degree of the d-orbital saturation, and the "weight" of d-electrons in the orbitals.

Vapor Phase Catalytic Conversion of Acetylene: II. Thermodynamics of Formation of Complexes of Acetylene and Hydrogen Chloride with Chlorides of Mercury, Bismuth, Cadmium, and Zinc Supported on Activated Carbon

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The experimental data for adsorption of hydrogen chloride and acetylene on the activated carbon catalysts promoted with chlorides of Hg, Bi, Cd, and Zn—were utilized to evaluate the thermodynamic constants for formation of the C_2H_2 and HCl complexes with these salts. The equilibrium constants so obtained for the HCl-metal salt complexes are in good agreement with the constants calculated from the kinetic data for hydrochlorination of acetylene over these catalysts.