

catalysts which are effective in syntheses of vinyl acetate, such as the acetates of Hg(II), Cd, and Zn—with carbon and silica gel as the carriers.

In terms of the cations of these catalytic salts, their orders of affinity for  $C_2H_2$  and  $CH_3COOH$  are  $Hg > Zn > Cd$  and  $Cd > Hg > Zn$ , respectively.

At the reaction conditions, the acetates are generally present as  $Me(OAc)_3$  complex.

#### BRIEF COMMUNICATIONS:

##### Effects of Electron Energy and of Other Conditions of Ionization of Ion Producers on Mass Spectra of Carbon Tetrachloride and Methane

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The results demonstrate that in ionization processes changes in electrical fields may significantly alter the mass spectra. This is primarily due to the differences in the initial kinetic energies of the ions. Increasing electronic energy beyond 200 eV leads to a minor depletion of the mass spectra due to the splinter ion effect.

##### Kinetics of Oxidation-Reduction Reactions With $AuCl_4^-$ Ions

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The reaction rate constants were determined for interaction of  $AuCl_4^-$  with  $NaCNS$ ,  $CS(NH_2)_2$ , and  $NH_2OH$  in aqueous solutions at a temperature of 20°. The heats of activation,  $\Delta H^\ddagger$  (kcal/mol) and entropies of activation,  $\Delta S^\ddagger$  (entropy units), were calculated. The results show that a proportionality relationship exists between  $\Delta H^\ddagger$  and  $\Delta S^\ddagger$  (the compensation effect).

##### Formation of Metallic Nickel by Thermal Decomposition of Nickel Carbonate

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Broad EPR signals are observed with samples of NiO made by decomposition of nickel carbonate in vacuum. These signals are ascribed to metallic nickel. The infrared adsorption spectra for the samples show presence of a metallic phase.

The conditions to initiate formation of metallic nickel in NiO are considered.

##### Effect of Partial Pressure of Water on Growth Rate of Nucleation Crystals in Thermal Decomposition of Ammonium Perchlorate

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A microstudy was made of the initial stage of thermal decomposition of ammonia perchlorate crystals at a temperature of 230° and different partial pressures of water in the surrounding air. The results show that the water vapor primarily affects the rate of growth of the nucleation crystals.

##### Mechanism of Catalytic Dehydrogenation of Alcohols Over Radioactive Magnesium Sulfate

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Dehydrogenation of  $n-C_5H_{11}OH$ ,  $n-C_{10}H_{21}OH$ ,  $n-C_{12}H_{25}OH$ , and  $C_6H_{13}OH$  was determined over  $Mg_2SO_4$  catalyst samples differing in specific radioactivity. The results show that introduction of the radioactive isotope into the catalyst significantly alters its energy of activation.

An explanation is proposed for the extremely great effect of the specific radioactivity on the yields of olefins.

##### Polarographic Study of Interaction of Aniline With Benzaldehyde and Its Derivatives

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A study of interaction of aniline and aldehydes with the electron-donor and electron acceptor  $n$ -position substituents shows that the values of the reaction rate constants vary with properties of the substituents: the rates are decreased by the donors and increased by the acceptors. This phenomenon is accompanied by parallel alternation of the electron density on the carbon atom of the aldehyde group. Based on kinetic data, the activation energies for the formation of Schiff's bases were calculated.