relationship indicates that the degree of overlap of the s- and p-electron functions, which effect the bonding between a metal and an organic moiety, changes with the character of the radical in the moiety. Aliphatic and aromatic radicals have opposite effect on the spectral structure of copper in Cu-polychelates. The changes in catalytic activity of the polychelates studied, correlate well with the experimental X-ray spectral data on the effect of the radicals in these polymers.

Kinetics of Isotopic Oxygen Exchange in Molecular Oxygen—Solid Oxide Systems

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A study was made of generalized kinetics of simultaneous isotopic and homomolecular exchange of molecular oxygen with the oxygen in the oxides. The differences in the kinetic correlations obtained lead to definite conclusions regarding the nature of exchange mechanism on each oxide.

Determination of Acidity of Some Silicate Catalysts by Use of Spectral Methods

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Acidity of catalytically-active double oxide systems of $Al_2O_3 \cdot SiO_2$; $MgO \cdot SiO_2$; $ZrO_2 \cdot SiO_3$; and $TiO_2 \cdot SiO_2$ was determined from the adsorption spectra and EPR analyses of molecular anthracene ions adsorbed on these oxide systems. Direct relationship exists between protonic and aprotonic acidities and the composition of the double oxides studied. The maximum acidity of the $Al_2O_3 \cdot SiO_2$ and $MgO \cdot SiO_2$ catalysts corresponds to the maximum concentrations of the four-coordinated Al^{+3} and Mg^{+2} ions in them. The peak acidity in $ZrO_2 \cdot SiO_2$ catalysts occurs at near equimolecular concentrations of the two oxide components.

Reaction of Formylglycine with n-Toluene Sulfonate Cyclohexyl β-[N-(N-Methyl Morpholinium)] Ethylcarbodiimide

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The kinetics of interaction of aqueous solutions of n-toluene-sulfonate cyclohexyl β-[N-(N-methyl morpholinium)] ethylcarbodiimide with formylglycine was studied by determining the cumulative yields of products with positive hydroxamic reaction. The study shows that the formylglycine-carbodiimide interaction yields two products: one of them is stable in acid media and gives positive hydroxamic reaction with alkaline NH_2OH solutions; the second product, on the other hand, disintegrates in acidic media and gives positive hydroxamic reaction with neutral NH_2OH solutions only.

Kinetics of Ethyl Ester of Formylglycyl Glycine Synthesis in Aqueous Solutions Containing a Carbodiimide Promoter

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Mixing aqueous solutions of formylglycine, ethyl ester of glycine and n-toluene sulfonate cyclohexyl β-[N-(N-methyl morpholinium)] ethylcarbodiimide (CME-carbodiimide, for short) results in accumulation of a labile derivative which gives positive hydroxamic reaction with a neutral hydroxylamine. The fact that initial pH and concentration of the reactants affect the reaction kinetics, shows that this derivative is formed from formylglycine and CME-carbodiimide *and* that it is identical with the labile derivative when produced at the same reaction conditions except for the absence of ethyl ester of glycine.

Analyses of kinetic and direct experimental data show that the dipeptide ester is formed by interaction of the labile derivative with the glycine ester. The rate of this reaction increases sharply with the system pH.

Mechanism and Kinetics of Catalytic Oxidation of Ethylene in Contact with Aqueous Solutions of Palladium and Copper Salts

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In contact with aqueous solutions of palladium and copper salts, ethylene is oxidized to acetaldehyde. The reaction is via the equilibrium formation of an ethylene-palladium chloride complex, with the Pd salt reacting along the following two independent routes: (1) equilibration with the copper ions, followed by an irreversible reaction with the hydroxyl ions; and (2) direct interaction with the hydroxyl ions. Although the reaction is