tion" (Chapter 4). Then the mechanism of stereoregulation in the polymerization with a metal alkoxide catalyst has been studied. Some observations presented here support the assumption that the stereoregulation is performed by the steric hindrance around the catalyst sites, which are controlled primarily by the bulkiness of the alkoxy group and by the degree of catalyst aggregation (Chapters 5 and 6). Polymerization by $Al(C_2H_5)_3$–H_2O systems (Chapter 7) with varying $H_2O/Al(C_2H_5)_3$ ratios and the alternating copolymerization of acetaldehyde with trichloroacetaldehyde by the $Al(C_2H_5)_3$ catalyst (Chapter 8) have also been described.

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Chemiluminescence in Slow Chemical Reactions: Application to Studies of Kinetics of Gaseous Phase Oxidation Reactions

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Studies show that the chemiluminescence in oxidation of different organic compounds is quenched by oxygen. Since, here, oxygen functions as a reactant and a quenching agent, the kinetic curves of the chemiluminescent reactions at small concentrations of oxygen typically pass through a maximum point. In oxidative decomposition of tertiary butyl peroxide (TBP) and in oxidation of acetaldehyde, the time to reach the respective maximum points was utilized to determine kinetic parameters of the two reactions.

The results of determination of kinetics of chemiluminescence in oxidation of propane over hydrogen bromide as the catalyst show that, here, the chemiluminescence reflects the kinetics of formation and consumption of an unstable intermediate reaction product.

Reactivity of Phosphoric and Thiosulfuric Acid Esters with Cholineesterase and Hydroxyl Ions

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Reactivity of phosphoric and thiosulfuric acid esters ("POS") was studied in inhibited cholineesterase (CE) and hydrolysis reactions. For these reactions the rate constants were determined and the pre-exponential factors were calculated. It was found that the kinetic constants vary with changes in the structure of "POS."

Nature of Intermediate Radicals Formed in Inhibited Radical Polymerization Reactions

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Pictures were taken of the EPR spectra of the radicals produced in polymerization of styrene in presence of the reaction-inhibiting compounds resulting from addition of a macro-radical to certain aromatic nitroso-compounds.

The basic characteristic of the spectra of the intermediate radicals, in which a nitroso-group is attached to the benzene nucleous, is the triplet of 1:1:1 intensity ratio, involving splitting of 10–12 electrons. The triplet is formed by interaction of the unpaired electron with the nitrogen-containing nucleous. With the radical concentration measurements as the basis, correlations between some of the constants were evaluated for the elementary reactions.

Mechanism and Kinetics of Bromination of Vinylphosphinic Acids

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The mechanism of bromination of derivatives of vinylphosphinic acids was studied, using the