EDITORIAL NOTE

The Editors of the U.S.S.R. Journal "Kinetics and Catalysis," a Russian language journal, and the Editors of this English language journal have agreed to make available to one another abstracts of their current articles, and to print them in translation for their own journal readers. They hope that this project will be of mutual benefit, a contribution to the scientific community, and perhaps a modest example of peaceful and constructive cooperation.

P. B. W.

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Dissociation of Ions CH_4^+, CH_3^+, CH_2^+, CH^+, H_2O^+, OH^+ by Single Impact with Atoms and Molecules of Various Gases

By S. E. KOOPRIYANOV

With the aid of a double mass-spectrometer, an investigation was made of dissociation of positive ions with energies of 1500 to 3000 ev. Relative probabilities of dissociation of the ions were determined. It was demonstrated that the spectra of dissociation of CH_4^+, CH_3^+, and CH_2^+ ions depend but little upon the structure of an atom (molecule) which caused their dissociation upon collision; at the same time, the spectra of CH_4^+ and CH_2^+ ions closely resemble the mass spectra of the respective CH_4 and CH_3 molecules.

Conclusion is made that distribution of dissociating ions occurs uniformly in accordance with their excitation energies.

Influence of Solvents on Reactivity and Other Physicochemical Characteristics of Polar Particles. II. Calculation of the Effect of Environment Upon Kinetics of Dissociation of Tertiary Butyl Chloride and Mechanism of the Reaction

By E. S. ROODAKOV

With the concepts of nonspecificity of solvation of reagents and of activated complexes as the background, there is presented an investigation of a quantitative relationship between the properties of a solvent and the kinetics of dissociation (solvolysis) of tertiary butyl chloride. A Grunwald-Winstein equation is derived. Explanation is offered of the exponential dependence of the reaction rate upon the composition of two-component solvents. A suggestion is made to take into account the various fine specific effects of anisotropic solvation in systems of this type. For the same systems, a relationship is derived between the reaction rate and the activity coefficient of the reagent. A method of calculation of the rates of thermal decomposition of gaseous $(CH_3)_3CCl$ is presented, utilizing directly the reaction data for the solvolysis in polar media. Realization of all of the quantitative relationships above is viewed as a direct indication of the unitary nature of the activation mechanism in any media and, specifically, as an indication that in polar media, like in a gaseous one, isobutylene —and *NOT* tertiary butyl cation—is the primary reaction product.

Emulsion Oxidation Under Pressure of Alkyl Aromatic Hydrocarbons. III. Effectiveness of Hydrogen Peroxide in Oxidation of Isopropyl Benzene and of 1,1-Diphenyl Ethane

By R. V. KOOCHER AND S. D. KAZMIN

In the oxidation of isopropyl benzene and of 1,1-diphenyl ethane in alkaline emulsions the initiation of the process by use of hydrogen peroxide is particularly effective during the self-inhibition stage of these reactions. Upon reaction, hydrogen peroxide obviates the reaction-inhibiting factors. An increase in the saturation concentration of hydroperoxide—which is observed at this point—is a function of the magnitude of the inhibiting reaction. The unusual initiating action of hydrogen peroxide occurs in the emulsion oxidation of hydrocarbons because of carrying out this reaction under the specific condition of existence of aqueous phase in the reaction system.

Kinetics and Mechanism of Dimerization of 1,1-Dephenyl Ethylene in the H_2SO_4–H_2O System.