













# MASS-SPECTROMETRIC STUDY OF DICHLOROACETIC ACID

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**Abstract** – Dichloroacetic acid (DCA) was studied by means of molecular beam mass spectrometry using the method of competitive reactions. The mass spectrum of the acid was defined more precisely and was found to be free of ions of the molecules formed during the pyrolysis of DCA on the walls of ion source. Kinetics studies for the reactions of fluorine atoms with DCA and cyclohexane resulted in calculating the rate constant for the reaction of interaction of DCA with atomic fluorine for the first time. A reliable source of radicals  $\text{CH}_2\text{ClCOO}^\bullet$  and  $\text{CHCl}_2\text{COO}^\bullet$  was created for examining their reactions with atmospheric oxygen. The results obtained make it possible to establish transformation processes of chloroacetic acids in the atmosphere.

*Keywords:* dichloroacetic acids, cyclohexane, mass spectrometry, toxicity, fluorine atoms, free radicals, reaction rate constant.