

Development of methods of high-temperature dynamic mass spectrometry and microgravimetry for the analysis of properties and composition of products of fast-flowing chemical reactions

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Numerous studies of fast-flowing physico-chemical processes show the complexity and non-triviality of solving problems of analyzing chemical reactions and the directions of their flow. Nevertheless, the development of techniques has led to the consideration of methods of spectrography in the IR and terahertz range, as well as more advanced methods of mass spectrometry with different conditions for sample entry, ionization, ion separation and their registration. This work is aimed at developing methods of high-temperature dynamic mass spectrometry for analyzing the composition of products of fast-flowing chemical reactions in real time. Experimental studies have been carried out on ultrapure samples of various nature and structure, and the stages of formation of nitrogen oxides, carbon, hydrogen and cyanides have also been shown. Quantitative estimates of the composition of reaction products of some energy-intensive compounds are presented. The samples were previously subjected to deep sublimation purification.