

AL-FARABI KAZAKH NATIONAL UNIVERSITY

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PHYSICAL CHEMISTRY
FOR MATHEMATICIANS
IN TASKS AND QUESTIONS

Educational manual

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M 96

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Reviewer

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Textbook is of physical chemistry is designed for students mathematical specialties of the university. It outlines the fundamentals of chemical thermodynamics, the theory of chemical equilibrium, the doctrine of the electromotive forces and the electrical conductivity of solutions, chemical kinetics.

Учебное пособие по физической химии предназначено для студентов математических специальностей университета. В нем изложены основы химической термодинамики, теории химического равновесия, учение об электродвижущих силах и электропроводности растворов, химической кинетики.

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INTRODUCTION

Physical chemistry – the science lying at the junction of chemistry and physics, studies the relationship of chemical and physical phenomena. Chemical reactions are always accompanied by varied physical changes: during the flow of most of them there is an allocation or absorption of heat; when operating galvanic cells due to chemical of reactions generates an electric current is, an electric current in the substances may occur chemically converted; under the action of light occur relatively simple chemical reactions used in photography, as well as complex processes of photosynthesis, many chemical processes are accompanied by the release of light. Physical chemistry uses the fundamental laws of physics and the results of physical and chemical experiments to study the properties of substances, identify patterns of chemical reactions and the relationship of external influences on the system to ongoing chemical changes in it.

The occurrence of physical chemistry as a section of chemical science connect with a name M.V. Lomonosov. According to his the definition of «Physical chemistry is a science on the basis for explaining provisions and experiments of physics that occur in mixed bodies during chemical operations».

The tasks of physical chemistry are the study and prediction capabilities and depth of chemical reactions, the regularities their occurrence over time, depending on external conditions and on the basis data on the properties and structure of molecules.

A variety of objects and phenomena studied in physical chemistry, led to the division of this discipline into a number of large sections, some of which now have an independent scientific implications and are treated as separate training course.