

**THE ROLE AND IMPORTANCE OF CHEMISTRY IN HIGHER MILITARY  
EDUCATION**

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**Annotation:** the article covers the teaching of chemistry FA in higher military education, the importance of inorganic, organic, analytical, physical and colloidal chemistry in the military field.

**Keywords:** chemistry, inorganic chemistry, inorganic chemistry, organic chemistry, chemical reactions, chemical elements, liquids, acids, atomic-molecular doctrine, chemical properties, physical and colloidal chemistry.

A mature specialist in each field receives a material being based on his professional qualifications. For example, mathematicians are able to see mathematical priority in real realities and even objects of imagination; physicists are more terribly aware of the physical foundations of event-events in the universe than representatives of other fields; chemists range from the smallest chemical units to the objects of the universe up to 10, treating them all as chemical structures, even perceiving life processes in their biological objects as chemical reactions.

At the higher educational institution "chemistry" is taught in many directions. This curriculum includes topics related to the inorganic, organic, analytical, high molecular compounds, physical and colloidal chemistry departments of chemistry. In the direction of training specialist personnel, Chemical Sciences are rightfully taught in the framework of 4 educational disciplines: general and inorganic chemistry, Organic Chemistry, Analytical Chemistry and physical and colloidal chemistry. The wider and detailed teaching of chemistry to cadets studying in the specialty will serve as a necessary basis for future specialists of the field to master special vocational-military subjects. Because to understand the true nature of radiation risks, chemical poisonings and viruso-bacteriological inhomogeneities and the atomic-molecular basis of being able to resist them, having theoretical and practical knowledge of each branch of chemistry is considered an important factor. The following details the importance of each department and subject of chemistry in the military.

General and inorganic chemistry. In this section of Science, the periodic system and law of chemical elements, the atomic-molecular doctrine, the atomic nucleus and the energetic steps of electrons, nuclear reactions, types of chemical bonds, basic classes of inorganic substances, chemical reactions and types of urnng, reaction rate, necessary factors for the occurrence of chemical processes, etc.k.s are studied. Periodic system and law of chemical elements. All bodies in the universe, including military-technical objects, are composed of chemical elements. The periodic table is an excellent tool for teaching chemistry, the manifestation of the properties of coarse elements in it to periods and rows is reflected. For example, in periods and rows, electronic configurations of elements are manifested. Electronic configurations represent the state of electrons around an atomic nucleus in energetic spikes. This is considered a convenient means of explaining the phenomenon of radioactivity in terms of elementary particles. By explaining that chemical elements have different nuclear structures, it will be easy to understand the processes that occur when radioactive chemical elements and the nuclear weapons on which they are based are applied, to understand the fundamental essence of chemical agents in their protection. The principle of operation of a hydrogen gun based on the thermonuclear reaction (the chemical changes that occur when a hydrogen atom moves to helium and vice versa) can be easily understood through the position of these two elements in the periodic table and their electron configurations. the source of the radiation beams  $\alpha$ -,  $\beta$ -,  $\gamma$ -is the separation of neutrons and positrons in the result of changes in the atomic nucleus of a chemical element, the processes of formation of radioactive isotopes are explained using the topics in chemistry. The chemical properties of metals and the compounds they form, as well as metals

and their alloys, are studied and their incomparable importance in the field of the military-industrial complex is explained. The main classes of inorganic substances. In this section, salts, acids, bases, complex compounds with an inorganic structure are studied in their properties, extraction, use. Cyanides, which are related to the class of strong poisoning substances, are a salt formed from the attachment of a cyanide acid residue to a metal atom or an organic radical. And in order to understand that its poisoning property depends precisely on the reactivity of the cyanide molecule and changes in the valence of the elements, it is necessary to study the atoms and ions that make up salts, bases, acids and other inorganic substances. In addition, the valences of 11 elements in inorganic substances, changes in oxidation states have their own influence on their chemical properties. So, cadets need to know their reactionary abilities in order to understand the mechanism of action of poisons and antidotes. To do this, it will be necessary to solve many exercises and issues on valences, oxidation states, types of Chemical Gardens. Types of chemical reaction and reaction rate. It is known that chemical reactions are divided into several classes. The processes of chemical transformation, i.e. chemical reactions, occur at different rates. For example, carbon combustion is actually its oxidation reaction. Coal requires a certain period of time to fully burn-oxidize. And the oxidation of certain substances occurs within the fraction of seconds. This type of oxidation reaction is called explosion. Cadets receive theoretical knowledge of the classification of types of chemical reactions and reaction rates, realizing the chemical nature of blasting work as a result of strengthening them with practical training, and, if necessary, knowing the chemical composition of explosives, can also think about the issues of chemical neutralization of them. Factors necessary for the occurrence of chemical processes. As mentioned above, an explosion is a chemical reaction that occurs very quickly. However, safety measures in the use of explosives (keeping them safe, transporting them, preparing them for use) are the first priority. In this case, the issue of reducing the propensity of explosives for detonation, but increasing the detonation activity at the required time, is a complex task in a chemically wide range. This requires cadets to be well versed in the chemical properties of explosives, detonators and anti-detonators. In these topics of chemistry, the necessary factors for the course of all chemical reactions are studied: temperature, pressure, catalyst, concentration, time, etc. Based on the study of the influence of these factors on the course of the reaction, it will be possible to control chemical processes, eliminating the chemical risk if necessary. Oil-gas, nitrate, phosphate, sulfate compounds, etc. k. chemical-technological processes occur in all important strategic industrial enterprises specializing in production. Cadets are regularly acquainted with chemical enterprises of Uzbekistan and the products produced by them, chemical processes in enterprises in the process of studying the relevant topics of chemistry. Access to this knowledge will be provided additional information-information on the chemical risks that cadets may face as a result of man-made accidents and ways to eliminate them.

Organic chemistry. This field of science studies the theoretical and chemical foundations of the relationship of the organic world and the vital activity of living organisms. Cadets master such knowledge as classification, nomenclature, extraction, physical and chemical properties, application (including in military Sox) of organic matter in this section of science. Chemical weapons and most of the poisoners are made up of organic matter. Examples include zarin, zoman, tabun, phosgene, difosgene, VI-gas, bi-zet, and many other poisoners. The most dangerous for living organisms of extremely dangerous, destructive weapons of mass destruction are created on the basis of elementorganic compounds. All products of the oil and gas, rubber-rubber, polymer-plastics, artificial-synthetic fiber industry fall into the ranks of organic materials. In the process of mastering these topics of organic chemistry, cadets are familiar with fuel-lubricating products, Military-Technical objects and parts of the mobile composition made of rubber or polymer substance, the chemical composition, obtaining, properties, application of natural, synthetic and artificial fabrics. Analytical chemistry. This section of science is studied in three parts: quality analysis, quantity analysis, equipment analysis. Cadets are introduced to the possibilities of qualitatively identifying atoms, atoms, ions or molecules of any type of Chemical, even poisoning substances, as a result of understanding the essence of quality analysis.

Based on the study of the classical methods of analytical chemistry, all modern anatalitic methods are formed concepts for the identification of atoms, ions or molecules. D.I. According to Mendeleev's

definition: “there will be no toxic substances in the universe, but poisonous quantities of substances.” Cadets are presented in detail with the concept of concentrations in the Quantitative Analysis section of analytical chemistry. Certain poisoners have a very small talofat-conveying concentration. Cadets are introduced to methods that have a high analytical sensitivity in the process of mastering the topics of quantitative analysis. Cadets get acquainted with the methods of equipment analysis in this section of science – anathylic control-measuring instruments and the principles of their operation, which are able to carry out both qualitative and quantitative analysis. Analytical measuring instruments, certain skills and skills are acquired when working with them. Acquired skills and skills are used in the correct and effective use of all types of control-measuring instruments, including measuring instruments used in the military field. Physical and colloidal chemistry. The science of physical and colloidal chemistry studies the occurrence of all chemical processes in large mashstabs. In the military field, however, this science explains from a physical–chemical point of view the theoretical basis of all processes that take place on the battlefield-from the process of firing a firearm to the detonation of a nuclear bomb. Take, for example, the firing process: factors such as energy, temperature, pressure are involved in the process, the process occurs at the expense of potential chemical energy. A chemical embedded in the cartridge is a potential source of chemical energy. Under external physical influence, gunpowder deposited in the cartridge case explodes and the chemical energy is converted into mechanical energy. This is almost the case both in the launch of the rocket and in the detonation of Mines and bombs. It is not enough to know the laws of thermodynamics or understand chemical reactions to understand the theoretical foundations of these structures, for this it is necessary to study chemical thermodynamics. Chemical thermodynamics-is only the subject of physical and colloidal chemistry.

Colloidal chemistry is the branch of physical chemistry that studies surface phenomena. In this case, the distribution of substances in different aggregate states in each other is studied in detail. For example, the distribution of liquids in liquids, the distribution of liquids in gases, the distribution of solids in gaseous environments, and similar colloidal States. Cadets, as part of the study of colloidal systems, form visions that the dispersion of aerosols of poisoning gases in the air depends on the concentrations of their toxic dosages. As a result of the realization that the spread of harmful substances in the air, water, soil, military-technical facilities is a colloidal state, measures to neutralize these objects are also understood from a chemical point of view. In cases where there are no detoxifiers used in the military field, knowing the properties of chemicals, cadets can see the possibilities of using them as a chemical or biological detoxifier.

Conclusion. It can be concluded that for cadets studying in the higher military education system, especially future officers who are preparing for the specialty “Radiation, Chemical and biological protection tactical command”, in-depth study of Chemistry in the field of specialty disciplines is correctly established.

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