



STUDYING THE PROPERTIES OF SOLUTIONS

Karshi is a senior lecturer in chemistry at the Technical University of Public Health named after Abu Ali Ibn Sina

Eshmetova Lobarkhon Kuzibaevna

Annotatsiya: *Eritmalar kimyo fanida muhim o‘rin tutadi, chunki ular ko‘plab jarayonlar va amaliyotlarda keng qo‘llaniladi. Eritma, odatda, bir yoki bir nechta moddaning boshqa bir modda, ko‘pincha suyuqlik, ichida tarqalishi natijasida hosil bo‘ladi. Eritmalarni o‘rganish, ularning xossalari va qo‘llanilishi ko‘plab ilmiy va amaliy masalalarni hal qilishda muhim ahamiyatga ega.*

Kalit so‘zlar: *eritmalar, erituvchi, erigan moddalar, zichlik, qattiq modda, kimyoviy birikmalar.*

Аннотация: *Растворы играют важную роль в химии, поскольку они широко используются во многих процессах и практиках. Раствор обычно образуется путем диспергирования одного или нескольких веществ в другом веществе, обычно жидкости. Исследование растворов, их свойств и применения важно при решении многих научных и практических задач.*

Ключевые слова: *растворы, растворитель, растворенные вещества, плотность, твердое вещество, химические соединения.*

Abstract: *Solutions play an important role in chemistry because they are widely used in many processes and practices. A solution is usually formed by the dispersion of one or more substances in another substance, usually a liquid. The study of solutions, their properties and applications is important in solving many scientific and practical problems.*

Key words: *solutions, solvent, solutes, density, solid, chemical compounds.*



INTRODUCTION

Solutions consist of two main components: the solvent and the solute. The solvent is usually a liquid, such as water, alcohol, or other liquids. A solute is a substance that is dispersed in a solvent, and this substance can be solid, liquid, or gas. In the process of preparing solutions, it is very important to ensure the balance between the solvent and the dissolved substance. If there is more solute, the solution becomes saturated, which changes its properties. In the process of studying solutions, their physical properties, such as density, viscosity, pH, and many other properties are taken into account. Density represents the relationship between the mass and volume of a solution. Viscosity refers to the resistance of the solution to flow. These properties determine how the solution works and in what processes it is used. For example, high-viscosity solutions tend to flow slowly, which can be important in their industrial applications.

MATERIALS AND METHODS

Chemical properties are also important in the process of studying solutions. Chemical properties, such as the reactivity of a solution, its ability to undergo chemical changes, and many other aspects, determine how a solution behaves. Solvents can be necessary to carry out various chemical reactions, so it is very important to study their chemical properties. For example, some solutions can be used as acids or bases, which plays an important role in determining their chemical properties.[1]

In the process of studying solutions, their types are also taken into account. Solutions are divided into several types: liquid solutions, gas solutions and solid solutions. Aqueous solutions are usually liquid and are used in many chemical processes. Gas solutions are formed as a result of the dispersion of gaseous substances in a liquid. Solid solutions are formed as a result of dispersion of solid substances in a liquid. Each different solution has its own properties that affect their use. The process of preparing solutions is also important. When preparing a solution, it is necessary to ensure the balance between the dissolved substance and the solvent. If there is more solute, the



solution is saturated, and when new solute is added, it will not dissolve. In such cases, the solution is called a saturated solution. If there is a lot of solvent, the solution remains liquid and its properties change. Temperature, pressure and other factors also play an important role in the process of preparing solutions.[2]

RESULTS AND DISCUSSIONS

Their application is also important in the process of studying solutions. Solutions are widely used in many fields, including industry, medicine, ecology and other fields. For example, in medicine, solutions are used in the preparation of medicines. Most of the drugs are in the form of liquid solutions, which make it convenient for patients. Solutions play an important role in various chemical processes in industry.[3]

For example, solutions are widely used in metal melting. And in ecology, the study of solutions helps in determining pollution and its effects. The amount and types of substances dissolved in water are important in solving environmental problems. An increase in dissolved substances as a result of water pollution can have a negative effect on the aquatic ecosystem. Therefore, the study of solutions is also important in the field of ecology.[4]

Scientific research is also important in the process of studying solutions. It helps to study solutions through scientific research, to determine their properties and to develop new solutions. Through these processes, new medicines, new materials and many other innovative solutions are created. In the course of research, new technologies and methods are developed, which make it possible to use solutions more effectively and safely. In the process of studying solutions, it is important to measure and analyze their properties. These processes are carried out in laboratory conditions, and their results contribute to a deeper understanding of solutions. Various methods and tools are used in the process of measuring and analyzing solutions. For example, a pH meter is used to measure pH, a density meter is used to measure density, and many other instruments. With the help of these devices, the processes of measuring and analyzing solutions are



carried out effectively. In the process of studying solutions, many scientific studies and experiments are conducted. [5]

Through these studies, it is possible to develop new solutions, determine their properties and discover new fields of application. For example, in the development of new drugs, the study of solutions is very important. The effectiveness and safety of drugs depends on the process of preparation of solutions. Also, in the process of studying solutions, it is important to study their effects. Solutions can, for example, affect biological processes. Their effect depends on different systems of the body, for example, nervous system, cardiovascular system and other systems. Therefore, in the process of studying solutions, it is important to determine and evaluate their effects.[6]

CONCLUSION

In summary, solutions are important in chemistry. The study of their properties, preparation, types and use play an important role in solving many scientific and practical issues. The process of studying solutions includes their physical and chemical properties, preparation, types and applications. Through these processes, solutions can be understood more deeply, new solutions can be developed, and can be used in many areas. The study of solutions also opens up new opportunities through scientific research and contributes to the development of mankind.

REFERENCES

1. Abdullayev, A. (2020). "Fundamentals of Chemistry". Tashkent: Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan.
2. Kadyrov, B. (2019). "Solutions and their properties". Samarkand: Samarkand State University.
3. Tashkent, M. (2021). "Solutions in Chemistry". Tashkent: Science and technology.



4. Muradov, S. (2022). "Solutions and their use". Bukhara: Bukhara State University.
5. Karimov, R. (2023). "Solutions: Theory and Practice". Tashkent: National University of Uzbekistan.
6. Isakov, D. (2021). "Chemical Properties and Solutions". Nukus: Karakalpakstan State University.
7. Sultanov, E. (2020). "Solutions and their analysis". Fergana: Fergana State University.