

## ISSUES OF DEVELOPMENT OF PROFESSIONAL COMPETENCE OF TEACHERS OF CHEMISTRY

TVXTXQTMAMH

"Methodology of Exact and Natural Sciences"  
head of the department, p.f.f.d., PhD D.S.Sarimova

**Annotation.** This article covers issues related to the development of professional competence of Educators, self-development, the development of their own pedagogical skills, the development of skills and professional skills in their activities, which will discover new opportunities for themselves in achieving even higher results.

**Keywords.** Professional competence, chemical experiment, Organization of chemical experiment, laboratory conditions, reagent, equipment.

The development of the professional competence of educators, the improvement of technologies for the provision of knowledge to student youth, is a guarantee of an increase in educational efficiency in an educational institution. It is necessary to work on the formation of a conscious attitude to improving one's skills, on the competence of self-development, in the era of a very rapid expansion of the volume of information, a fierce development of society and the unparalleled development of Science, and in each pedagogical worker. At a time when new goals, new requirements are being put forward, the types of activities are changing, teachers will have a need to get acquainted with new achievements of Advanced Science and practice, discover new opportunities for themselves in achieving higher results in improving their pedagogical skills, of course, to improve their skills and develop professional skills. The main factor in qualitative changes in the field of education is seen in the competence of educators, mastered in labor activities, to what extent they can be absorbed by the student in youth and put into practice. At this point, the educator implies the implementation of work related to the selection of new strategies for providing knowledge, understanding the content and result of the educational process, based on a competency approach in his attitude to professional development in employees. The result of the reforms carried out in the education system is associated with the potential, professional competence of pedagogical personnel. The pedagogical research and analysis carried out show that the professional competence of the educator is lagging behind the requirements imposed today on the educational process. This circumstance indicates the relevance of the problems associated with the qualitative training of educators in the process of continuing education.

Globalization of education, the introduction of innovative technologies ongoing, large-scale flow of information regularizes educational content

requires updating and improving. General secondary education modern innovation of teaching students in their schools introduction of methods economy of the Republic of Uzbekistan for the next 10 years developed industrial-technological locomotives of the world in industry and economy of the economy by 2030 becoming one of the world's leading countries in terms of networks one of the important conditions when creating a floor. Currently studying in general secondary schools knowing that the chemical industry has entered every field, students can necessary for the knowledge of the basics of Science, Education, survival and functioning it is necessary for him to feel that the formation of skills has become an urgent issue.

Great attention is paid to the preparation of students for life by organizing the processes of effective preparation of students for social life through the content of experience of practical activity, the formation of base competencies, and the development of pedagogical competence, the organization of educational and educational processes based on a competency approach. In particular, the gradual introduction of the national curriculum of general secondary education in order to "set priorities for the systematic reform of general secondary and extracurricular education, raise the growing younger generation to a qualitatively new level of spiritual, moral and intellectual development, introduce innovative forms and methods of education into the educational process" in order to gradually increase the student's, it is emphasized that the transition to a training system that allows training personnel for an innovative digital economy and an information society, thanks to the internet and information technologies, teachers should become a simple connoisseur, teacher - organizer, aimed at developing critical thinking, communicative, creative creativity and cooperation skills, that is, competencies. One of the conditions for the correct Organization of a chemical experiment is to achieve at least to a minimum the availability of utensils, equipment, tools and devices that will be needed in a chemical laboratory. This is the initial task that is set before the chemistry teacher. The degree of equipment of the chemistry room and laboratory is one of the criteria for assessing the potential of a chemistry teacher. Regardless of the level of supply of the educational institution with chemical reagents and instruments, the creation of a chemical experiment environment is the responsibility of the chemistry teacher. We have given below recommendations for a positive solution of the situation through a creative approach in the organization of a chemical experiment in conditions of a lack of reagents and equipment in laboratory conditions.

Containers for solutions The containers (vials) emptied from the drugs are thoroughly washed, the rubber caps are pierced in the diameter of the pipette NI and the pipette is installed. Labels are prepared and glued to the dishes, and transparent film tapes are glued over them so as not to get wet, so that the inscription does not fade (paraphinization is also possible). As a tripod to dishes, a tripod can be made by piercing wood, plywood or penoplast. It is advisable to use 1 ml syringes instead of pipettes (fig.

Figure 1. Containers for solutions



#### Tripod for test tubes

Draw a circle equal to the diameter of the test tube on a piece of wood. Draw an equilateral triangle inside the circle. The resulting triangle corners are pierced and 5 cm taillights are fixed. It is necessary to hold three test tubes. In the case when you place the test tubes in such a tripod, changes in the bottom of the test tube can also be clearly observed (fig.

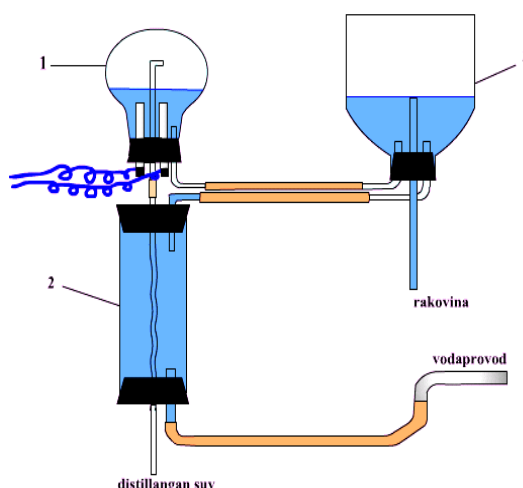
Figure 2. Tripod for test tubes



#### Distiller Assembly

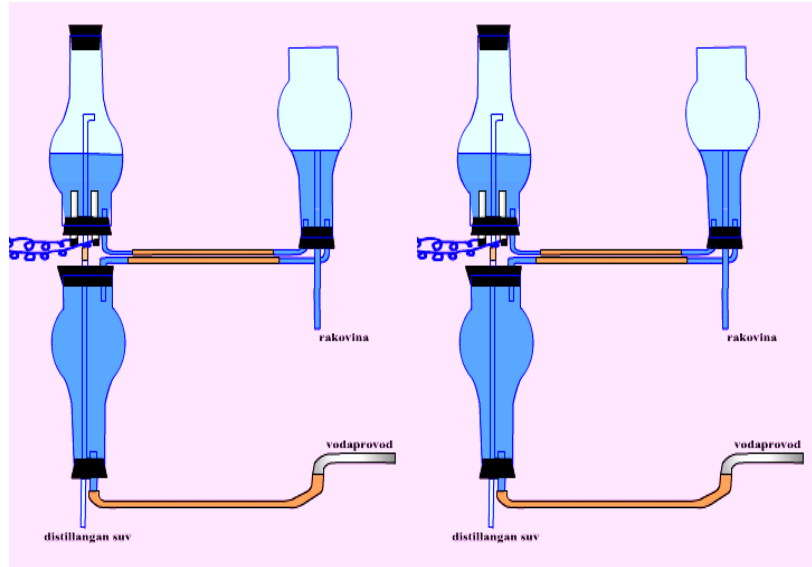
There is always a need for distilled water in a chemical laboratory. And distillers who fully satisfy the laboratory will not be enough in all institutions. But this device can be assembled without difficulty (fig.

Figure 3. Distiller



1-the water-boiling instrument can be assembled using a stopper with two steel sterjens and a glass flute installed on a larger electric lamp (for the purpose of a boil, hardened lesions can also be used by placing plastic or matchsticks between them so that the two do not touch each other instead of the steel sterjen). 2-the refrigerator can be assembled using a 20 ml syringe, glass tubes and a rubber stopper. 3-a device that adjusts the water level can be made from polyethylene-based containers in which the drink with the tag cut is stored. Considering the heat resistance of lamp lamps, it is possible to assemble a distiller from them too (fig.

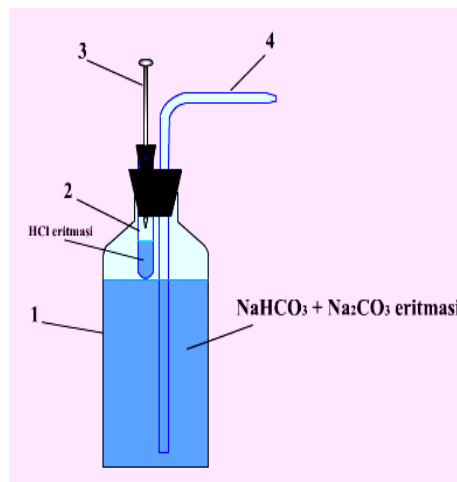
Figure 4. Distiller Assembly from lamp lamps



#### Fire extinguisher tool

It is known that in the laboratory room it is necessary that the safety devices are always ready for Operation. The fire extinguisher is among them. A simple fire extinguisher can be made from polyethylenterephthalate containers emptied from drinks (Photo 5).

Figure 5. Fire extinguisher made of polyethylene container



1-a solution of drinking and laundry soda is placed in the container. A small test tube (2) and a bent glass flute (4) are installed in the rubber stopper. The tip of the test tube is hidden by a rubber stopper with an insulated nail (3) installed. To start the fire extinguisher, the nail is hit and pressed, as a result of which solutions of drinking and laundry soda with test tube sinib hydrochloric acid react to release carbon dioxide. Under pressure, a solution erupts from the flute.

#### Drying board

To dry washed dishes, you can nail a wooden or plastic board at 45° and make a drying board. Nails can be saved from scratching glass jars by wrapping them with insulation tape (fig).

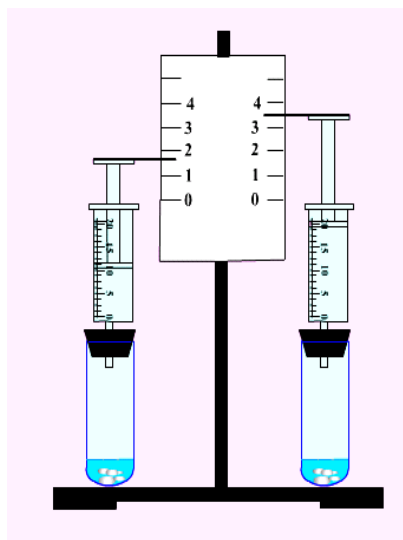
Figure 6. Drying board



Such a drying board can be made in all laboratories for a short time without any difficulty. In addition, equipment such as a tripod for test tubes, a test tube holder can also be made by hand. A tripod for test tubes can also be made by piercing a piece of wood larger than the diameter of the test tube (so that it does not pierce by the back). A test tube holder can be made by twisting the wire. The test tube is put on a rubber flute on the part of the holder that is held by hand.

The lack of tools and reagents in a chemical laboratory causes difficulties in organizing a chemical experiment and has a negative effect on obtaining a self-designed result. Some problems related to the shortage of chemical devices can be solved by the searchability and creativity of the chemistry teacher. Problems can be solved in a fairly short time, having developed methods for collecting the necessary tools for a chemical experiment using medical, household equipment and items. In particular, medical syringes, burnt electric lamps and other items can be used in many places. This, along with the successful organization of the experiment, increases creativity, and also leads to the discovery of independent equipment and tools. Effect of concentration of reacting substances on the rate of chemical reaction 10% of sulfuric acid is poured into the first test tube and 20% into the second test tube in equal amounts. A piece of zinc of the same size is inserted into both test tubes, and the syringes with the mouth of the test tubes lowered to the end are closed with a built-in stopper (fig.

Figure 7. Study of the effect of concentration on the rate of a chemical reaction



With an acid with a high concentration, the reaction will go faster, and the release of hydrogen will also be faster. This can be summed up depending on the height of the rise of the porches attached to the arrow. Using the information given above, it is possible to carry out many experiments as independent work in laboratory conditions where there is a shortage of reagents and equipment, even at home. Being able to take advantage of the opportunities available through Factor and creativity has been one of the long-standing indispensable characteristics of chemists. In conclusion, it should be noted that further development of Science in our country, education of our youth as the owner of deep knowledge, high spirituality and culture, formation of a competitive economy, new and raising to a modern level, improving educational programs on the basis of advanced foreign experience, improving the quality of textbooks and literature, to fundamental and Applied Research in the field of chemistry mastering modern knowledge based on necessary.

#### **Used literature**

1. National curriculum of chemistry. Tashkent-2022
2. M.A.Kuchkarov, D.S.Sarimova. Laboratory classes from general chemistry. Tutorial. - T.: 2022, 80 b.
3. D.S.Sarimova, M.A.Kuchkarov. Laboratory classes from chemistry. Tashkent-2022.140 P.
4. D.S.Sarimova., Improving the competencies of chemistry teachers in the system of professional development using information and communication technologies. Dis. Ped.science.fal.dock., To obtain a PhD degree. - Tashkent -2021.