

ORGANIZATION OF THE CHEMICAL LABORATORY

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At the current stage, a number of state and commercial enterprises, institutions, organizations, and individual departments are opening, where chemical research is carried out using special chemical equipment, devices, and devices. Laboratories conduct recognition of physical substances, the physical and chemical composition of substances, and a number of other indicators. In any laboratory, there is a wide variety of chemical utensils and reagents [1].

A number of requirements must be met for proper functioning. In particular, the laboratory is equipped with general exchange forced ventilation and the places of possible accumulation of harmful chemicals are equipped with local suction. The premises of chemical laboratories are equipped with stationary fire alarms and fire extinguishing systems. All electrical equipment, power tools with a voltage of more than 36 V, as well as equipment and mechanisms that may be under voltage, are securely grounded. The floors of the premises of chemical laboratories must have a smooth, non-slippery, easy-to-clean surface, be resistant to mechanical loads, moisture, and aggressive environments.

The workplace can be illuminated by natural light (in this case, the tables should be placed perpendicular to the windows) or by general lamps located on the ceiling. If necessary, the workplace can be illuminated with table lamps.

The placement of furniture should be such that it is possible to clean the floor under them. The tables are equipped with table racks and cabinets. On laboratory tables, everything necessary for work should be placed in such a way that any necessary item can be easily reached by hand without getting up.

Tables and fume hoods intended for work with fire and explosive substances must have protective edges and be covered with non-combustible material and for work with aggressive substances - materials resistant to their influence.

Gas and water faucets on work tables and in hoods should be located in such a way that accidental opening of the faucet is impossible.

All work with chemicals should be carried out only in fume hoods. Extractor cabinets must be equipped with extractors [2].

Chemical reagents must be stored in a special glass or plastic container and must be tightly closed. Each container can have a label with the name of the substance, and its chemical formula. The content of the main compound and main impurities is also indicated on the label. Depending on the content of the main substance and permissible impurities, chemical reagents have the following grades of purity: pure, pure for analysis, chemically pure, and highly pure. Working with chemical reagents has its own characteristics. All organic substances are poisonous to one degree or another, and many of them are flammable and explosive. Therefore, when working in a chemical laboratory, it is necessary to strictly observe the basic safety rules when working with chemical reagents.

In the chemical laboratory, there should be dishes according to their purpose: general (test tubes, watering cans, chemical beakers, flasks, crystallizers); special (refrigerators, washers, desiccators, etc.); measuring (pipettes, burettes, measuring flasks) [3].

References:

1. Laboratory // Terminological dictionary-handbook on construction and architecture / R. A. Shmyg, V. M. Boyarchuk, I. M. Dobryansky, V. M. Barabash; under general editing by R. A. Shmyg. — Lviv, 2010. — p. 115. — ISBN 978-966-7407-83-4
2. <https://zakon.rada.gov.ua/laws/show/z1648-12#Text>
3. https://moodle.znu.edu.ua/pluginfile.php/685073/mod_resource/content/2/%D0%9B%D0%95%D0%9A%D0%A6%D0%98%D0%AF%201.pdf