

## HUMAN SAFETY AND TOXICOLOGY

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**Annotation:** This article examines the different types of harmful substances, their classification by the method of penetration into the human body, types of origin, the nature and extent of exposure to the body and the method of their practical application.

**Keywords:** The process of globalization, industrial improvement, chemicals, production, zararli moddalar, toxicology.

In the process of globalization, the improvement of various industries, the development of production is widely associated with the use of various chemicals in metallurgy, electronics, machinery, nuclear energy, agriculture and transport. Due to this, their use is increasing day by day, which has a significant negative impact on the environment. They contain many substances that are toxic to humans and all animals. That is why the problems of protection of human health and its prevention are of special importance. Much attention is paid to the development of safety rules and regulations and the identification of the mechanism of toxic effects of chemicals.

Chemical toxicity is associated with the following factors: Quantity, general properties of the chemical, its absorption in biological systems and its transfer to the body, low or high toxicity of substances in the process of biotransmission, binding to macromolecules in the body, control of the amount of elements by the effect of homeostatic mechanism, etc. It is important to determine the amount of toxicity between the biological activity of substances and their relationship to chemical properties.

Therefore, knowledge of the concepts of dose (quantity), effect (effect), response and concentration should be considered. Because a living organism is a complex system, all its parts are the sum of interactions, and the process of poisoning is associated with the kinetics of the excretion of substances from the body and their absorption through tissues. Currently, more than 7 million chemicals have accumulated in the environment and it is natural that they have a potential negative impact on public health. They play a significant role in the development of various new diseases in humans. 60,000 of them are used in human activities. Every year 500-1000 new chemical compounds and compounds appear.

Harmful substances are substances that cause injuries, diseases or abnormalities that are detected in contact with the human body, both in the process of contact with it and in the long periods of life of present and future generations. Depending on the practical use, chemicals (organic, inorganic, organic element) are divided into:

- industrial poisons used in production: for example, organic solvents (dichloroethane), fuels (propane, butane), dyes (aniline);
- pesticides used in agriculture: pesticides (hexachlorane), insecticides (carbophos), etc. ;
- medicines;
- household chemicals used in the form of food additives (acetic acid), sanitary, personal care products, cosmetics, etc. ;
- biological poisons of plants and animals found in plants and fungi (aconite, tsikuta), animals and insects (snakes, bees, scorpions);
- toxic substances: sarin, mustard gas, phosgene, etc.

All substances can show toxic properties, even in large doses of table salt or high-pressure oxygen. At the same time, it is common to refer to poisons only under normal conditions and in relatively small amounts.

Industrial poisons include a large group of chemicals and compounds found in production as raw materials, intermediates, or finished products.

Industrial chemicals can enter the body through the respiratory tract, gastrointestinal tract and intact skin. However, the main route of admission is the lungs. In addition to acute and chronic occupational intoxication, industrial poisons can lead to a decrease in the body's resistance and an increase in overall morbidity.

### **What are toxins, toxicants and toxic substances?**

The word "toxin" does not mean a certain class of substances, but rather something that is harmful to the body. In other words, a toxin or toxic substance is a chemical or compound that can harm the body or be dangerous to health when exposed to the body.

According to some definitions, the word "toxin" can only be used for toxic substances of animal and plant origin, so to avoid confusion, the Environmental Protection Agency and other government agencies use the word "toxicant" in reference to toxins. Each toxic substance has a certain concentration or toxic dose, after which the toxic effect of the substance begins. However, most of the substances that are considered environmentally toxic are considered harmful even in low doses.

Toxins, in general, have selective toxicity, ie they pose the greatest threat to a particular organ or system. Toxins, in general, have selective toxicity, ie they pose the greatest threat to a particular organ or system.

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- nervous, mainly leads to impaired mental activity (carbon monoxide, organic compounds of phosphorus, alcohol and its surrogates, drugs, sleeping pills, etc.);

- liver, including chlorinated hydrocarbons, toxic fungi, phenols and aldehydes should be distinguished;

- kidney - heavy metal compounds ethylene glycol, oxalic acid;

- blood - aniline and its derivatives, nitrites, arsenic, hydrogen;

- lungs - nitrogen oxides, ozone, phosgene and others.

Indicators and criteria of toxicity of harmful substances are quantitative indicators of toxicity and danger of harmful substances. Toxic effects at different doses and concentrations of toxins may manifest themselves in functional and structural (pathomorphological) changes or death. In the first case, toxicity is usually expressed in the form of effective, threshold and inactive doses and concentrations, in the second in the form of lethal concentrations.

The study of the effects of certain substances has given an idea of what to expect in a particular production during various technological processes, how to avoid, combat or reduce the impact of harmful effects.

In addition, the study of safety requirements for work in areas where harmful substances may occur has provided an opportunity to get acquainted with various regulations governing the rules and regulations for monitoring the level of harmful substances in the workplace.

Harmful substances are substances that, when in contact with the human body, cause occupational injuries, occupational diseases or health problems. The degree and nature of disturbances in the normal functioning of the body under the influence of the substance depends on the route of entry into the body, dose, duration of exposure, concentration of the substance, its solubility, receptor tissue and the state of the organism as a whole, atmospheric pressure, temperature and other environmental factors. Exposure to harmful substances can be anatomical injuries, permanent or temporary disorders and joint consequences. Highly active harmful substances in the body without anatomical damage lead to disruption of normal physiological activity, functioning of the nervous and cardiovascular systems, general metabolism, and so on.

### **Conclusion**

In conclusion, 500-1000 new chemical compounds and mixtures of various chemicals for humans and all animals appear every year in and within the total production facilities. Of these, 60,000 are those that are used in human activities, toxins or toxic substances that are harmful to the body or dangerous to health when exposed to the body. The resulting substances are understood.

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