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EFFECTS OF HARMFUL AND TOXIC FACTORS OF PRODUCTION ON THE HUMAN BODY

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Abstract: *Dust, which is small particles of matter that can float suspended in the air, exists in the form of natural or industrial waste. These dusts affect the human body as a harmful factor. Harmful factors in the air are mainly studied with the concept of industrial dust.*

Key words: *Industrial enterprises, Dust, Ionizer, Production*

Industrial dust and its impact on humans. Dust is generated during many activities in the household. According to the sources of origin, they are divided into natural and artificial dust. Natural dust is formed without human influence. The category of such dusts includes the blowing of sand and eroded layers of soil under the influence of winds and storms, the dusts that appear in flora and fauna, volcanic eruptions, and other cases. The amount of natural dust depends on the meteorological conditions, the seasons of the year and the region in which the detected area is located.

It was found that dust particles in each cubic meter of air are 10 times more in cities than in fields and gardens. In mountainous areas, dust particles are even less.

Artificial dusts are created as a result of direct human influence in industrial enterprises and constructions. In some sectors of production, such dangerous industrial dusts are released that their release without cleaning can lead to catastrophic consequences. Depending on the origin, it is divided into organic, mineral and mixed dust. The harmful effects of dust depend on its chemical composition.

Depending on the size of the dust, that is, its dispersion, it is divided into 3 groups:

• dust larger than 10 microns. Usually, such dust settles quickly on the ground under the influence of its own weight.

• dust from 10 μm to 0.25 μm in size. These dusts are called fine dusts or microscopic dusts. They fall to the ground very slowly.

• dust with a size smaller than 0.25 μm. These dusts are called ultramicroscopic dusts, they do not settle on the ground, but fly in the air.

The chemical composition and solubility, dispersibility, shape of dust particles, their hardness, structure, electric charge properties have a great impact on the body. The main effect of dust is, first of all, when it is inhaled. It can cause damage to the respiratory organs: bronchitis, pneumoconiosis or the development of a general reaction (poisoning, allergy). The entry of dust into the lungs can create conditions for the development of pneumonia, tuberculosis, and lung cancer.

The shape of dust particles is spherical, flat and other. In the formation of aerosols, most of the condensation of dust particles has a circular shape. The shape of the particles affects the stability of the aerosol and its position in the body. Dust particles with sharp edges injure lung tissue. Dust types such as fiberglass, asbestos mica can cause microinjury of the cells of the upper respiratory tract, affect the mucous membranes of the eyes, nose, mouth and skin.

According to the Labor Code, workers undergo a medical examination before starting work. People suffering from pulmonary tuberculosis, upper respiratory tract and bronchitis, cardiovascular diseases or other diseases are not accepted for dusty work. In order to ensure safe and healthy working conditions, the amount of dust in the air environment in production areas should not exceed the allowable amount (YQM, it is also referred to as the permissible limit value-REChM). In the fight against the formation and spread of dust, technological processes are transferred to automatic methods, the density of equipment is reduced, and the transition to certain remote control systems is important.

Harmful production factors.

Harmful factors can always occur in production. For example, vibration, noise, dust, smoke, gas, etc. Taking this into account, they are taken into account in advance and measures against them are determined.

Moderation of harmful factors

The moderation of harmful factors will be as follows:

- using a dust filter or ventilation device;

-vibration using an elastic spring, soft rubbers;

- using noise absorbers, silencers;

-using hot or cold heating or cooling devices, etc. All this is done on the basis of established norms.

Effects of ionizing radiation on the human body and the diseases it causes

Ionizing radiations, i.e. rays, as a result of their impact on the human body, disintegrate the existing substances in the body - that is, they ionize. This mainly leads to a violation of blood, cell and bone composition, and as a result, a violation of the normal functioning of the internal organs of the body is observed.

The effect of ionizing radiation on a person is painless and a person does not feel it. Only when the radiation exceeds the norm, a person experiences symptoms such as headache, nausea, eye pain, mood disorders, and excessive fatigue.

When providing assistance to a person who has received radiation, first the injured person is taken to a separate room, hot tea is given, and then medical service personnel are contacted. In such cases, the person providing assistance is also required to be in protective equipment. Under the influence of ionizing radiation, a person suffers from liver, lung, intestinal disease, as well as bone disease and cancer-white blood disease. Patients with this disease are under constant medical supervision.

Protective means against ionizing radiation

Ionizing radiation is caused mainly by the effect of ionizing rays - alpha , beta and gamma (- these rays are emitted by radioactive substances and its wavelength is 4 ... 0.1 nm) formed in radioactive substances. , the absorption of rays by the body is not great, but it has a slight effect on the eyes and skin, but it is dangerous to affect the stomach through the intestines. Its rays are highly absorbent and cause light sickness due to its effects. Therefore, when working with radioactive substances, there should be special clothes - a gown, overalls, semi-overalls (these should be made of undyed cotton fibers), cotton caps, etc. In case of appreciable radioactive poisoning, clothing made of film (polyethylene) is worn over these clothes. These clothes are made of materials that can be easily cleaned from radiation.

In cases where the activity is more than 10 μK, gloves made of lead rubber are worn. More wetsuits are recommended. At these times, the respiratory organs are mainly protected with the help of a special respirator or protivogas (anti-gas mask). More Chlang anti-gases are used (in which one end of the Chlang stands in a high radiation position).

For eye protection - closed glasses with phosphate tungsten or lead glass are used. If there are radiant substances, the face and eyes are protected with the help of barriers (protective sheets) made of organic glass.

At the end of the work, the clothes and protective equipment exposed to radiation are removed in a separate room.

Ionizing radiation is observed in very small quantities even in the computer monitor used today. That is why, taking into account that most of the work is related to the computer, the duration of their work is divided according to the daily working time as follows: the daily working time should not exceed 4 hours; after every 20 minutes of work, you should rest for 5-10 minutes in a room without a computer.Toxic factors of production to the human body

calculate the effect.

In the industry, production poisons are the factors that affect a person in the conditions of work, reduce work ability and health, and cause occupational or production damage. They are mainly studied by the science of toxicology. This science studies the effects of industrial poisons on the body, determines their level of harmfulness and danger, develops hygienic signs and recommendations.

Poisons can have general and local effects. The general effect develops as a result of absorption of the poison into the blood. For example, in case of manganese poisoning, the nervous system is damaged, and in the case of benzene, the organs of blood separation are damaged. Tissue damage in case of local exposure: exposure, inflammatory events, burns of skin and mucous membranes occur when working with alkaline and acidic solutions and vapors.

In production, poisoning occurs in acute, moderate and chronic forms. Acute poisoning occurs mainly in a group situation. These poisonings are characterized as follows:

1. The poison has a short-term effect - in one shift;

2. It happens as a result of a large amount of poison entering the body, a very high concentration in the air, unknowingly drinking a chemical substance, or severe contamination of the skin.

Chronic poisoning is caused by the gradual accumulation of small amounts of poison in the body over a long period of time. Damage itself can accumulate in the body and cause changes. For example, acute benzene poisoning mainly affects the nervous system and narcotic effects, while chronic poisoning affects the blood production system. Although acute and chronic poisonings are similar in symptoms to acute poisonings, they develop slowly and are somewhat chronic.

Production poisons also cause other negative consequences. They reduce the biological resistance of the body, allow the development of diseases of the upper respiratory tract, tuberculosis, cardiovascular system. In addition, poisons cause bronchial asthma, eczema and other diseases as a result of an allergic effect.

Effects of poisoning on the human body. In production, poisoning enters the body mainly through the respiratory tract, gastrointestinal tract, skin, through the damaged part of the skin. In chronic or acute poisoning with the same poisons, the body is damaged in different ways. This is caused by the large volume of lung tissue, the rapid entry of poison into the blood and its absorption without additional obstacles.

Airborne toxic gases and vapors can be absorbed through the skin, as the skin participates in the breathing process. In addition, toxic vapors and gases in the air can dissolve in the fat layer on the skin and then be absorbed through it. Fat-soluble toxic substances, in particular, compounds such as carbohydrates, aromatic amines, benzene, aniline, have the property of passing through the skin. The passage of poisons through the skin is determined to a certain extent by the ability of the solute in the skin layer to pass into the blood, not their solubility in fats.

The nature of poisons in production through the skin is taken into account in hygienic standards and health measures: the permissible amount of such substances in the air is set somewhat low, measures are taken to protect skin coverings, and it is recommended to wash after work.

Poisons also act through the digestive tract. In particular, substances in the form of dust are trapped in the mucous membranes of the nasopharynx and the upper part of the respiratory tract, are partially excreted with mucus during coughing and sneezing, partially swallowed and enter the stomach. Poisons enter the digestive organs when personal hygiene rules are not observed: eating with dirty hands, smoking. Solubility may increase in the acidic environment of the stomach and the alkaline environment of the intestine. Their entry into the stomach causes damage to the mucous membrane and disruption of the activity of the secretory glands. Finally, toxins from the gastrointestinal tract are absorbed, most of which enter the vascular system and pass through the liver barrier. The liver is one of the most active organs involved in making them harmless, but it itself becomes an object of damage.

When the poison enters the body, it interacts physically and chemically with the blood stream, cell membranes, protein cells, and other components of the interstitial environment. The biological direction of these processes is the body's fight against poisons.

The standard of permissible amounts of toxic substances in the air environment. In the current conditions, it is natural for workers to demand the absence of poisons in the environment at their workplaces, and achieving such a result is considered a very difficult technical task, and its implementation is associated with large material costs. Accordingly, there is a need to justify the acceptable levels of occupational hygiene.

In the "Air of the working zone" section of GOST, this amount is defined as follows: the amount of harmful substances in the air of the working zone for 8 hours or in the course of work not exceeding 40 hours per week, which does not cause diseases or deviations from the state of health determined by inspection methods, is allowed. TRLs (allowable amounts) have been established for toxic substances, and modern scientific points of view are used in their justification, and sensitive physiological and biochemical parameters of the organism are taken into account. Hygienic standards of labor hygiene are based on the achievements of scientific and technical development.

In justifying the NQM of damages:

- physical and chemical properties of substances;
- experimental test results;
- materials on the health status and illness of workers are used in production hygienic monitoring data.

Based on the state standard, toxic substances are divided into the following classes: extremely high, medium and low risk depending on the level of impact on the body. Improvements in working conditions lead to a decrease in the amount of harmful substances in the air of many workshops, and severe manifestations of contamination are rare. In the fight against occupational poisoning:

- elimination of release of toxic substances in technological processes;

•new technology and automation can be introduced to reduce the release of toxic substances into the air.

One of the ways to fight against poisoning in production is to control the state of the air environment in the work area. According to the standard, in the control of substances of the II class of danger, the quantities of toxic substances should not only be recorded, but also equipped with automatic recording devices that activate sound and light alarms to take necessary measures in case of an increase in NQM.

In the case of persons working with toxic substances, the labor law provides measures such as limiting the working day, increasing the length of the vacation, early retirement. For example, the annual vacation and retirement periods in factories that work in an alkaline environment and emit strong odors (cocoon fiber separation factories, tanning factories, etc.) are fundamentally different from other jobs. Women and teenagers are not allowed to work in enterprises with a high risk of harm to the body. The standard for toxic substances in the work zone is determined by the state. It is mandatory for plants, factories and other institutions to strictly define the PPE. However, these are controlled by the State Ministry of Health.

Accounting and registration of occupational injuries is mandatory. In accordance with the "Regulation on the investigation and accounting of accidents in enterprises", every incident of damage should be investigated and preventive measures should be developed. Treatment-prophylactic measures play an important role in the prevention of poisonings that occur in production. They include, first of all, the medical examination of workers and the organization of special meals. In a number of enterprises with the possibility of exposure to poisons, additional and special meals are provided for workers.

The procedure for evaluating workplaces for harmful and toxic factors in terms of working conditions is carried out on the basis of the decision of the Ministry of Labor of the Republic of Uzbekistan dated February 25, 1993 No. 2 18.

Fire safety requirements for dust traps and filters. The main fire safety requirements for dust traps are as follows:

•it is advisable to place the chambers that capture explosive dust outside the building;

•conductors containing combustible and explosive dust must be provided with self-closing valves in case of fire;

•the cameras should be equipped with a water sprinkler to quickly extinguish the burning dust;

•electrical systems of devices for removing dust from combustible substances are well insulated, measures must be taken against sparking in electrical contact parts during start-up and shutdown cycles.

Cyclones are selected using the corresponding tables in the catalog and indicators. According to fire safety requirements, cyclones must be made of non-combustible materials. Cyclones that clean the air from explosive dust are placed outside the

buildings at a distance of at least 10 m. The requirements for the fire safety of mesh filters with manual dust removal are the same as for dust capture chambers.

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