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PROBLEMS OF INCREASING THE LEVEL OF OCCUPATIONAL SAFETY AND HYGIENE REGARDING THE RISK OF HARMFUL EFFECTS BY HUMANS FROM THE COMPONENTS OF METULURGICAL WASTE

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The practice of rational waste management is largely unpopular in many countries. As a rule, waste is not processed and enters the environment, polluting it. The presence of heavy metals in waste is particularly dangerous for the environment.

Heavy metals are naturally found in the earth's crust. Due to the dramatic increase in the use of heavy metals, this has led to an inevitable surge of metallic substances in terrestrial and aquatic environments. Heavy metal pollution occurs as a result of anthropogenic activity. The main cause of pollution is primarily due to metal mining and smelting, foundries and other metal-based industries, leaching of metals from various sources such as waste dumps [1].

From an ecological point of view, heavy metals cause the greatest concern and are the most dangerous for living organisms and the environment. Some metals affect biological functions and growth, while other metals accumulate in one or more different organs, causing many serious diseases such as cancer. Heavy metals, affecting people and the environment, create a number of environmental problems that lead to serious risks to health and the environment.

It should be noted the propensity of heavy metals to accumulate in the environment, and not decompose, unlike many other pollutants. Many heavy metal compounds are not degraded by microorganisms and chemicals. Therefore, their total concentration in the environment remains stable for a long time. The total content of heavy metals in the environment does not fully reflect its danger. More important are available (mobile) components, that is, part of the total amount of heavy metals that can migrate into the environment or be absorbed by living organisms [2].

The current state of metallurgical production is characterized by the formation of a significant amount of waste, which accumulates in landfills, occupying areas of possible arable land and polluting the surrounding territories [3]. Particularly dangerous for the environment is the presence of heavy metals in metallurgical waste, which include Cr and Ni, which pollute the soil [4] and groundwater [5].

The increasing pollution of the terrestrial and aquatic environment by persistent heavy metals is one of the most serious problems of the last decades, arising from their high toxicity, rapid accumulation, biodegradability and persistence. Harmful heavy metal ions such as chromium ($Cr^{3+/6+}$), nickel (Ni^{2+}) can react with bioparticles in the human body and other life forms, which can cause numerous diseases and disorders even at low concentration levels [6] . Hexavalent Cr can cause toxic effects and is dangerous for humans and animals. It is more soluble and mobile than trivalent Cr [7].

One of the sources of waste of this composition is oxide and finely dispersed waste from non-ferrous metallurgy and production of corrosion-resistant and heat-resistant alloy steels and alloys. When stored in open air in landfills, the finely dispersed nature of the generated waste promotes wind dispersal. At the same time, it is possible for microparticles raised by the wind to enter the respiratory organs and other mucous membranes of workers. This can cause deterioration of health with the development of respiratory diseases. One of

the options for reducing the harmful effect of the generated oxide waste is to improve the equipment of storage places with the elimination of contact with soils and precipitation. These can be covered areas or warehouses. It is also possible to use tubs or other containers.

The measures mentioned above are temporary and require additional storage and maintenance costs. In this vein, the processing of the generated oxide waste in our own production is a fundamentally high-quality solution to the existing problem.

Therefore, the improvement of the technological parameters of the processing of doped man-made waste with the production of qualitatively new alloying additives [8] provides not only the development of resource saving, but also the improvement of sanitary working conditions and an increase in the level of safety of the residents of the surrounding territories.

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