

a methemoglobin. In this regard there is a need of search of methods and means of correction of such damages increasing efficiency of oxidation-reduction processes of restoration of a methemoglobin.

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MEDICAL WASTE. THE GROWING ISSUES OF MANAGEMENT AND DISPOSAL IN THE REPUBLIC OF BELARUS

Large amounts of expired and unused medications accumulate in households. This potentially exposes the public to hazards due to uncontrolled use of medications. Most of the expired or unused medications that accumulate in households (household medical waste) is thrown to the garbage or flushed down to the sewage, potentially contaminating waste-water, water resources and even drinking water. There is evidence that pharmaceutical active ingredients reach the environment, including food, however the risk to public health from low level exposure to pharmaceuticals in the environment is currently unknown. In Belarus, there is no legislation regarding household medical waste collection and disposal.

On the other hand, there is a problem with the handling of medical waste at the national level. In the Republic of Belarus, a system dealing with pharmaceutical products with an expired shelf life and highly toxic drugs has not yet been conceived (cytostatistics). According to state statistics in 2015 the Republic of Belarus formed 8.98 tons of pharmaceutical waste (expired medicines, pharmaceutical preparations, which have become unusable, residues) and 46.5 tons of cytostatic pharmaceuticals (expired, became unusable; residues).

From the 8.98 t of pharmaceutical waste formed at the beginning of the year (1.79 t in 2014) 2.88 t was used; 1.24 t was neutralized; 4.50 t was buried in landfills; and the remaining 0.57 t was used for storage on site organizations where it was formed; meaning the presence of waste at the end of the year amounted to 2.15 t with regard to cytotoxic drugs, formed from 46.5 t in relation to the waste at the beginning of the year of waste (94.86 t in 2014) 5.95 t was used, 63.27 t was neutralized; 4.0 t was used for storage on site organizations where it was formed; the presence of waste amounted to 72.13 t at the end of the year.

The main problem - handling of cytotoxic pharmaceutical products - waste first hazard class, which are formed on the basis of many medical institutions. Cytotoxic agents - medications that are widely and successfully used in the treatment of cancer. The result is toxic waste, particularly at temperatures above 20 degrees. They can easily penetrate into the human body through the lungs, gradually affecting the hematopoietic, reproductive and immune systems. The requirements of sanitary

norms and regulations for cytostatic waste pharmaceuticals has provided a method of neutralization by pyrolytic incineration at temperatures below 1200⁰ C. In our country furnaces with similar temperature conditions are only used by a few companies involved in the production process and are not intended for incineration cytostatics. In accordance with the provisions of normative legal acts in the absence of pharmaceutical hazardous cytotoxic waste (PHCW) technologies for cytostatic waste pharmaceutical destruction must be kept in special rooms, in order for drug agencies to be allowed to use them. Only some hazardous waste is sent to the furnace. One option for a temporary solution to the problem of accumulated waste (PHCW) is depositing it on the CUE "Complex on processing and landfilling of toxic and industrial waste of Gomel Region."

Thus, at the national level, the issue of the utilization of PHCW can be resolved by the organization: temporary storage of PHCW on the territory of the unitary enterprise « Complex on processing and landfilling of toxic and industrial waste of Gomel Region " and burning at a temperature not lower than 1200⁰ C in special installations, which requires the purchase of special equipment.

Resolution of this issue requires a significant financial investments and the participation of all interested bodies of state administration, as well as executive and administrative authorities.

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X-RAY FLUORESCENCE ANALYSIS OF LEAD-ZINC WASTES

X-Ray Fluorescence analysis (XRF) is a nondestructive physical method used for chemical elemental analysis of materials in the solid or liquid state. The specimen is irradiated by photons or charged particles of sufficient energy to cause its elements to emit (fluoresce) their characteristic x-ray line spectra. The detection system makes determining energies of the emission lines and their intensities possible. Elements in a specimen are identified by their spectral line energies or wavelengths for qualitative analysis, and intensities are related to concentrations of elements, providing an opportunity for quantitative analysis.

XRF provides one of the simplest, most accurate and most economic analytical methods for the determination of the chemical composition of many types of materials. It is non-destructive and reliable; requires little to no sample preparation; and is suitable for solid, liquid and powdered samples. It can be used for the determination of a wide range of elements, from potassium to uranium, and provides detection limits at the ppm level; it can also measure concentrations of up to 100% easily