Waste management is one of the most pressing issues. Production waste is generated in the process of activity of almost all business entities. The Republic of Belarus has a small area and does not have enough raw materials, so the economic component of this issue is extremely important for the country. One of the activities of the Government of the Republic of Belarus is the maximum involvement of waste in circulation as recyclable materials, as well as the introduction of new jobs because of reconstruction of production facilities. The main goal of the waste management system is to reduce its harmful effects on the environment, to maximize the involvement of waste in civil circulation as recyclable materials, and to create closed cycles of its collection and utilization in the country.

The recycling of secondary resources (including used tires) by grinding is currently the foremost in many countries of the world. Compared to the combustion method and chemical processing, this method is more environmentally friendly.

The study considers the activities of the enterprise JSC "Ecover PRO", namely: the production of rubber crumbs and rubber tiles. Due to the introduction of a new technological line for the production of rubber crumbs at the enterprise JSC "Ecover PRO" and the need to update the main local standard legal acts of the enterprise in the field of waste management, new documentation for the waste management has been developed for the enterprise.

In the course of the study, the normative documents of the Republic of Belarus in the field of waste management have been studied, the technological processes, equipment and production stages at the enterprise JSC "Ecover PRO", information of the generation of waste, wastewater and emissions at various technological stages, documents on waste management over the past few years have been analyzed, and an waste inventory has been carried out.

As a result of the inventory, 8 sources of waste generation and 20 types of waste, including one new type of waste, were identified. All wastes were classified in accordance with the Waste Classifier of the Republic of Belarus, the standards and annual volumes of waste generation were determined. The standards for the generation of new types of waste to be disposed of were calculated on the basis of methodological recommendations for calculating the standards for waste generation. The standards were defined for wiping material contaminated with oils (oil content is less than 15 %), brake composite pads, used oil filters.

The instruction for waste management has been developed, which sets out duties in the field of waste management, establishes the procedure of accounting of wastes, obtaining permission for the storage and disposal of waste, defines condition for storage and transportation of waste, and also the enterprises for processing waste generated at the enterprise have been identified. Based on the analysis of the Register of waste management facilities, such enterprises as JLLC "Scientifically and industrial group "Ecological Alternative", PTUE" Trading House "TroikaMarket", MHUE "Unicom" and others were selected. The waste will be transferred to the enterprise OJSC SvetlogorskKhimvolokno for disposal. An application for a permit for the disposal of waste at the Vishnevka landfill was issued.

ASSESSMENT OF SOIL POLLUTION BY VARIOUS POLLUTANTS IN THE INFLUENCE ZONE OF PETROCHEMICAL ENTERPRISES

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The assessment of chemical soil contamination level by total and mobile forms of heavy metals and polycyclic aromatic hydrocarbons (PAHs) on the site of JSC "Mogilev plant of artificial fiber" is presented.

Keywords: heavy metals (HM), soil, chemical pollution, polycyclic aromatic hydrocarbons (PAHs), maximum concentration limit (MCL), approximate permissible concentration (APC).

Nowadays the environmental aspects of industrial chemical pollution, where local soil contamination is most evident, are of particular importance.

Uncontrolled and excessive introduction of chemicals into the environment leads to a soil stability disturbance as it is a self-regulating system; to contamination of surface and ground waters, ambient air, horticulture and animal husbandry products, and, ultimately, to a negative impact on humans.

The soil samples were taken from 0-20 and 0-15 cm soil horizons using a soil auger with a strictly fixed sampling depth.

Table 1 presents soil monitoring data of the JSC "Mogilev plant of artificial fiber" site.

The main statistical parameters of the total HM and mobile forms of HM
in the soils of the JSC "Mogilev plant of artificial fiber" site.

Indices	Cd		Zn	
	total	mobile	total	mobile
Minimum value, mg / kg	0.12	0.07	21.7	3.1
Maximum value, mg / kg	0.15	0.12	127.6	23.7
Average for a sample, mg/kg	0.14	0.09	82.7	14.2
Values above the MCL / APC [1], %	–	–	75	–
Maximum multiplicity of MCL/APC exceeding	–	–	2.3	–
Mogilev region local background value	0.33	–	18.9	–
Average value in Mogilev	0.51	–	45.8	–

The average total cadmium in the soils of the JSC "Mogilev plant of artificial fiber" site is 3.6 times lower than the APC. Mobile cadmium in the soil samples does not exceed the MCL.

The occurrence of total zinc in concentrations exceeding the MCL is found out accounting for 75 %. The average concentration of total zinc exceeds 1.5 times the APC.

It is stated that total zinc in the soils of the JSC "Mogilev plant of artificial fiber" site has decreased 1.3 times recently. The PAH content in the soils observed does not exceed the established standards in comparison with previous years of observations, when this value was 1.3 times higher than the APC.

Local soil monitoring found out that almost all soils in the controlled area undergo chemical contamination. The main soil pollutants of the "Mogilev plant of artificial fiber" site are zinc, cadmium, and PAH.

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POSITRON EMISSION TOMOGRAPHY VISUALIZATION PROCESS

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The purpose of a positron emission tomography for visualizing the anatomy of a body is presented. The principle of a PET examination, the principle of detecting photons, and a PET scanner setup is described.

Keywords: positron emission tomography, PET/CT scanners, nuclear medicine, PET department, medical imaging, radiopharmaceuticals, positron annihilation, line-of-response (LOR), field of view, BGO, LSO.

A positron emission tomography (PET) is a non-invasive nuclear imaging technology that involves administration of a radiopharmaceutical labeled with a positron emitting radionuclide to a patient and subsequent visualization of the distribution and kinetics of this radioactive substance in a patient's body. A positron emission tomography is based on the detection of the temporal coincidence of two 511 keV photons produced during annihilation of a positron and scattering in opposite directions. Temporal coincidence of photons within the selected interval is recorded by special tomography electronics. Since the directions of scattering annihilating photons are in a straight line, an additional collimation is not required to limit the system's field of view.

Currently, a PET is often combined with a computer x-ray tomography (CT) in one device. Such a system (PET / CT) represents a fundamentally new visualization modality. It combines the gantry of both modalities into a single whole, which allows a linear movement of a patient from one apparatus into another. Data collection occurs in a close time sequence and joint registration. The motivation for this approach comes from the need to identify areas of increased absorption of the radio tracer in relation to an individual anatomy of a patient. By increased radiopharmaceutical assimilation PET scanning only reveals the abnormality of tissue functions, rather than provides information on tissue morphology.

The PET imaging process begins with the injection of a radiopharmaceutical labeled with a positron-emitting radionuclide into a patient. Positrons are formed during the decay of neutron-deficient nuclei. Positronium is unsta-