

DISPOSAL AND PROCESSING OF HOUSEHOLD WASTE

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Анотація

Головною проблемою українців є відходи. Вони поділяються на промислові та побутові, але усі вони неправильно утилізовані, таким чином наносять величезні та деколи невилправні шкоди навколишньому середовищу та живим організмам.

В Україні території зайняті звалищами. Усього таких звалищ налічується більше 6000, вони займають 2,600 гектарів землі. Вважається що в середньому звалищ у містах утворюється приблизно 1 тонна на одну людина в рік.

Ключові слова: навколишнє середовище, технології, методи, енергія, відходи, утилізація, звалища.

Abstract

The main problem of Ukrainians is waste. They are divided into industrial and domestic, but all of them are not properly disposed of, thus causing enormous and sometimes irreparable damage to the environment and living organisms.

In Ukraine, the territories are occupied by landfills. There are more than 6,000 such landfills in total, and they occupy 2,600 hectares of land. It is estimated that the average landfill in cities is about 1 ton per person per year.

Key words: environment, technologies, methods, energy, waste, landfills.

Introduction

Innovative technologies of waste disposal were analyzed, their advantages and disadvantages, possibilities of application were considered. It is shown that modern innovative waste disposal technologies allow obtaining alternative environmentally friendly energy and have high efficiency. The use of these methods will allow not only to dispose of solid waste without polluting the environment, but also to obtain valuable raw materials for processing, which were lost when using outdated methods.

The purpose of the work is to acquaint people with the principle of waste sorting and to find alternative options for waste disposal.

Research Results

A serious problem for many countries of the world is the accumulation of a huge amount of mixed waste in landfills. In the process of rotting such waste, highly toxic compounds are formed that can poison the environment. Innovative development is a new method of microbial disposal of such waste. The advantages of this method are that the process is fast – only 2-3 weeks and has high efficiency – the weight decreases from the initial one by several dozen times. This technology can be used for the disposal of mixed food waste in large cities, food waste processing, hotels and food enterprises in resort areas, and can also be used in extreme conditions [5-6].

Many developed countries use industrial processing of solid household waste, which takes into account the requirements of ecology, resource conservation and economy. The following technologies are widely used:

- thermal processing (incineration);
- biothermal storage (with the production of biofuel);
- anaerobic fermentation (with the production of biogas);
- sorting (in order to separate components subject to secondary processing, removal of harmful components).

Thus, 20-25% of so-called municipal waste is burned in European countries.

Japan – about 65%, in the USA – about 15%. However, direct combustion technology is environmentally dangerous, as it releases toxic substances into the environment. In Japan, integrated waste processing was introduced at waste processing plants. About 2/3 of garbage is burned, the share of recycled waste increases annually (today it is about 17%), the amount of waste sent to the landfill decreases (about 18%). Waste recycling is the fastest growing industry in Japan today. Promotion of disposal of household waste and processing of raw materials has been declared one of the priorities of state regulation.

Sweden has developed biotechnology to break down plastic using a fungal enzyme that can break down polymers into simple monomeric elements. This provides a “plastic cycle”: the waste of one product is a raw material for another.

In Great Britain, the technology of processing food waste into energy by the method of anaerobic digestion has been developed and is successfully operating. For this, bacteria are used and biogas and biofertilizers are obtained.

In Singapore, the technology of producing power units from garbage was introduced. Thanks to this technology, Singapore produces 2,500 MWh of electricity per day.

In South Korea, a special pneumatic sewer takes garbage directly from apartments. It is transported to sorting mechanisms through underground pipes. In the future, it will be delivered to a plant that will produce gas from this waste.

India has developed and is using a plastic recycling technology that replaces the bitumen used in asphalt production. According to Indian technologies, about 15% of bitumen can be replaced in the construction of roads from plastic waste. To date, thousands of kilometers of roads have been built [1-4].

Conclusions

Considering the above, we can say that there is no need to introduce new innovative methods of waste disposal significant capital investment and time. The use of microbial pellet disposal methods will significantly speed up this process. People understand the importance of solving this disaster and can offer options to eliminate it, which is very important.

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