

charge current, the lower the efficiency. At the same time, a decrease in the charge current leads to an increase in the duration of the charging process, as well as a slight deterioration of the power quality parameters.

It is worth noting that the specified topology of the charging station converter can also be used when using alternative power sources, such as solar panels or energy storage.

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WAYS OF DISPOSAL AND SECONDARY PROCESSING OF POLYMER MATERIALS

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Currently, the problem of waste disposal of polymeric materials has become relevant not only from the point of view of environmental protection, but also due to the fact that in the conditions of shortage of polymer raw materials, plastic waste

becomes a powerful raw material and energy resource. At the same time, solving problems related to environmental protection requires large capital investments. The cost of recycling and disposal of plastic waste is about three times higher than that of most industries, and almost eight times the cost of recycling household waste. This is due to some properties of plastics that greatly complicate or make them unsuitable for known methods of solid waste disposal [1, 2].

The main amount of plastic waste is disposed of by burying or burning in the ground. However, waste disposal is economically unprofitable and technically difficult. In addition, burial, flooding and burning of polymer waste leads to environmental pollution, reduction of land plots, etc. Most often, the heat released during combustion is used for the production of steam and electricity. However, waste incineration plants are often economically inefficient, since the raw materials burned have a low calorific value. In addition, during burning, soot is formed from the incomplete combustion of polymer products, the release of poisonous gases and, as a result, repeated pollution of air and water bodies, rapid wear of the furnace due to severe corrosion [3].

The production of biodegradable plastics is promising, based on the introduction of light and biologically active additives into polymer compounds, which should contain functional groups that can decompose under the influence of ultraviolet light or anaerobic bacteria. The difficulty is that the additive must be introduced into the polymer synthesis or processing stage, and its degradation must continue after use, but not during processing. The main problem is to create a destructive activator that ensures a certain service life of plastic products without reducing quality [4]. Activators are also non-toxic and should not increase the cost of the material.

The reuse of polymer waste allows to significantly save on primary raw materials and electricity. There are quite a lot of problems related to the disposal of polymer waste, but they cannot be considered insoluble. However, the solution is impossible without:

- organization of collection, sorting and primary processing of depreciated materials and products;
- development of a system of prices for secondary raw materials that stimulate enterprises to process them;
- creation of effective means of processing secondary polymer raw materials, as well as methods of its modification in order to improve quality;
- creation of special equipment for processing;

– development of the nomenclature of products produced from secondary polymer raw materials.

Capital and operating costs for the main methods of recycling polymeric materials can be even lower than disposal costs. The positive side of recycling is that in various sectors of the country's economy, an additional amount of useful products is obtained, and the environment is not exposed to repeated pollution. For these reasons, waste recycling is not only economically feasible, but also the best solution to the problem of using plastic waste from an environmental point of view.

In the process of processing and operation, the material is subjected to mechanochemical influences, thermal, thermal and photooxidative destruction, which leads to the appearance of active groups that can initiate oxidation reactions during further processing.

In the secondary processing of polymer materials, pyrolysis is used, which allows obtaining high-calorie fuel, raw materials and semi-finished products used in various technological processes, as well as monomers used for the synthesis of polymers. High-temperature pyrolysis is used to obtain low-molecular raw materials from special types of polymer waste, such as a mixture of thermoplastics, cable insulation, but high efficiency is achieved only in the case of continuous methods.

In order to improve the quality and increase the service life of products during the secondary processing of polymer materials, raw materials should be modified.

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