

# **Ensuring environmental safety and economic benefits from the use of biodegradable materials based on low density polyethylene with natural rubber additives as products with a short service life**

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## **Abstract.**

Nowadays the issues of environmental conservation have received increasing attention, especially promoting transition towards green technologies in various sectors of economy.

One of the most important problems is the problem of accumulation of waste of synthetic polymers in the environment, especially polyolefins, which have exceptional resistance to physical, chemical and biological degradation. According to the authors the most promising directions for creating such materials, are materials based on low-density polyethylene (LDPE) with different content of natural rubber (NR). As part of the research, the authors proposed a recipe and technology for the production of materials based on low-density LDPE with different content of NR. The advantages of using such materials include their high performance physical and mechanical characteristics, which allow creating a wide range of different products, as well as their high ability of degradation in the soil.

One of the trends in recent years has become tougher competition among manufacturers of various biodegradable materials. They need not only to bring products made of biodegradable materials to the market, but also to ensure higher profitability of their products due to new formulation and new technologies. From this point of view, the authors also calculated the efficiency of the organization of production of the proposed materials based on low-density LDPE with different content of NR. The results obtained on the basis of generally accepted indicators of net discounted income and payback period showed high efficiency of production of the proposed materials based on low density LDPE with different content of NR.