

Korinenko R.V.,  
postgraduate of specialty 183 "Environmental protection technologies"  
Titov T.S.,  
Ph.D. (Chem.), Associate Professor of the Department of Ecology, Chemistry and Environmental  
Protection Technologies  
Kushmir D.V.,  
bachelor of specialty 183 "Environmental protection technologies"  
Vinnytsia National Technical University  
naydichroksolana2017@gmail.com

## MICROPLASTIC – HIDDEN THREAT OF MODERNITY

Today, plastic is one of the most widely used materials in all industries. It gained such popularity due to its positive properties: low cost of production, strength, resistance to moisture and chemical factors. Considering this, the production of polymer products is actively increasing every year, and this outlines one of the biggest environmental problems of mankind: the excessive accumulation of waste polymer materials. An equally important problem is the formation of microplastics as a result of the influence of natural factors on polymer waste. Microplastics take part in food chains and have a significant negative impact on environmental objects.

Previously, the presence of microplastics in the blood [1], digestive and respiratory systems of the human body was confirmed [2].

The authors of the work [3] studied 15 samples of the olfactory bulb of the brain of deceased persons using the method of IR-spectroscopy of diffuse reflection on a Fourier spectrometer. In all cases, microplastics or polymer fibers were detected, indicating the airborne distribution of microplastics in the environment. These data may indicate the involvement of microplastics in the development of neurodegenerative diseases in some cases.

Other studies published in the article [4] confirm the presence of microplastics in the human placenta, and studies [5] indicate the presence of the latter in the reproductive cells of male subjects.

Taking into account the data of the above-mentioned studies and the continuation of the significant growth rate of the production of polymeric materials, there is an urgent need for a proper method of disposal of polymeric waste. In this direction, the most progressive method is the method of catalytic low-temperature pyrolysis. Energy saving, relative environmental safety and high economic potential distinguish the method of catalytic thermal destruction of waste polymer materials from other disposal methods.

The final products of catalytic thermal destruction are pyrolysis gas, pyrolysis liquid and pyrocarbon. In order for the obtained components to have a high economic value, it is necessary to follow a clear algorithm for sorting polymer waste. Only synthetic raw materials obtained under such conditions can be considered as an alternative to non-renewable energy sources (natural gas, oil and coal) [6].

Such a disposal approach as catalytic thermodestruction of polymer waste can ensure the sustainable and promising development of the transition from fossil natural fuels to renewable energy sources and become a solid foundation for the circular economy in Ukraine. In addition, the problem of the negative impact of polymer waste on environmental objects, in particular on the human body, will be partially solved.

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