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Recycling Carbonaceous Materials by Cavitation Nanotechnology Techniques

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The purpose of this paper was the studying of hydrodynamic cavitation effect on physical properties of carbonaceous material – heat-treated cellulose. The heat-treated cellulose powders have been investigated by the method of X-ray phase analysis (XPA). Hence it was possible to obtain nanofluid – a water suspension with the features characteristic of weak water suspension of fulleroids as a result of rather short cavitation processing of the weak water suspension of heat-treated cellulose, nanofluid is very perspective for industrial technologies.

Keywords: cavitation nanotechnology, activated carbonaceos materials, cement stone, micro constancy, nanostructures

Introduction

At present all over the world there is a rapid development of new ideas and experimental approaches to creating efficient technologies on the basis of nanomaterials.

It is considered that there should be no gap or "vacuous" link in the chain of knowledge about biosphere which conservation is the most important problem of ecology. In the new millennium in Russia this gap proved to be the problem of disposal of utilized polymer substances, among them packings, and also combustion products in the form of incineration ashes, carbon-blacks, and the like.

Solid domestic refuse (SDR) is a special danger for environment although industrial waste considerably contributes to pollution as well. Dumping-grounds are a terminal point of empty packaging where it is combined with other solid domestic refuse making up much more than 50 % of the total waste.

According to the "INECO" agency data by the end of 1990s in Russia there had been accumulated more than 55 million tonnes of waste products only at the registered urban dumping grounds. As this takes place, the bulk of SDR has amounted to 250-300 kg per person annually, and the total increase has reached 6 % a year.

The dumping grounds pollute free air, soils and ground waters with various compounds that are harmful and poisonous for humans and habitat: methane, sulfur dioxide, dioxin, high-density

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