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PROSPECTS FOR PEAT PROCESSING IN THE REPUBLIC OF BELARUS

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The wide prevalence of peat resources in the Republic of Belarus, the presence of explored efficient reserves of brown coal and oil shales determine the need for an integrated approach to their processing. Peat is considered as a valuable organic raw material, which has the properties both of solid fossil fuels and renewable biomass. There are five main areas of peat resources useing, based on the capabilities of peat, – agricultural, fuel and energy, chemical-technological, medical and natural (ecological).

Peat is used for complex processing aims. It takes place due to unique composition of organic matter in peat, what make possible to use this substrate as a raw material for the production of new products and materials, including analogues obtained from other natural resources.

Peat is used to produce fertilizers; biostimulators; fodder yeast and fodder additives; sinks of harmful substances; special anti-corrosion additives and rust converters; coal-shelling reagents for drilling equipment; metallurgical raw materials of waxes of model compositions; for precision casting in mechanical engineering; separation lubricants in the production of articles from polyurethane foams; medicines; household chemicals; graphic arts and other purposes (1).

Peat deposits are natural complexes that are formed under various natural and climatic conditions, which determines their complex structure, the variety of peat properties and the wide range of their changes. Understanding the micro- and macrostructure of peat, the nature of its aggregates, the mechanism of formation of molecular and phase contacts, defines the main tasks of creating new and improving existing technological schemes for the exploitation of peat resources.

The presence of biologically active substances in the peat gives it the properties of an active ion exchange material with a high absorption capacity, which determines its potential value as a fertilizer and a natural sorbent.

High modern technologies have been developed for the production of plant, animal and microorganism special substances – so called growth regulators on the basis of peat material. Peat growth regulators are introduced in small doses into the living beings or environment (habitats). Growth regulators have a significant effect on metabolism, increase the effectiveness of basic nutrition process, and increase the individual resistance of bodies to unfavorable environmental conditions. It is indicated that peat regulators may be useful for living beings in conditions of law radioactive level contamination. A wide range of the chemical composition of peat, simple technological methods of its thermochemical modification and isolation (extraction) of individual components made it possible to create the scientific and practical foundations for the chemical technology of peat processing.

Peat, as the richest source of physiologically active compounds for many years, has been successfully used in veterinary and animal husbandry for the production of drugs and biologically active additives.

A promising component of peat is a humic complex. A humic substances may be used for creating the wide range of wood pigments with a high qualities and ecological demands, in comparison with traditional paints. This peat component may be successfully used for production of a rust converter. Rust converters has a grate application nowadays in conditions of quite aggressive environmental conditions first of all acidification conditions.

Peat is actual and effective source for carbonaceous regenerators production. Peat-based carbonaceous regenerators are very deficient and grate value agents for metallurgy using, as well as insulating materials. They are characterized by increased biological stability and fire resistance (2). Thus, peat has great prospects as a starting material for the production of products of various purposes.

References

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