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Flax cellulose in production of high energy condensed systems

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Abstract

To ensure the prospective development of the raw-material base for special chemistry and powder production with a real and fairly cheap annually renewable source of cellulose, it is necessary to search for cellulose-containing plants cultivated at the territory of the Russian Federation in volumes sufficient to cover the demands of cellulose nitrates production. First of all, we can talk about a fairly widespread, resistant to the environmental conditions of the Russian Federation and annually renewable crop of plant origin – flax.

“GosNIIKhP” FSE carried out works on the development of an industrial technology for fibrous flax cellulose with optimal physical characteristics for cellulose nitrates production. The technology allows to obtain the flax cellulose with a high content of α -cellulose – no less than 97 % and a dynamic viscosity – no less than 30 mPa·sec, with a low content of lignin and non-cellulose impurities. Cellulose also has a high reactivity when interacting with acid mixtures. To assess the suitability of flax cellulose on its basis, both experimental and production samples of cellulose nitrates and powders were obtained, which fully meet the requirements of the standard documentation.

Furthermore, an application of the developed technology for flax cellulose manufacturing at the domestic flax-processing enterprise ensures an annual renewable raw cellulose material base; demands of enterprises of special chemistry in the domestic raw cellulose material; a possibility of controlling and affecting on a quality of produced cellulose; an environmental safety of flax cellulose production owing to use chlorine-free and acidless methods of flax fiber improvement.

Thus, the developed production technology for the production of cellulose from domestic raw materials will make it possible to organize the production of military and civil products using the flax cellulose.

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