

## **Research on size stability of commercial nanodiamond suspensions under the influence of external factors**

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The object of our research is explosion made nanodiamond which is an aggregate with an average initial particle size of 4nm.

Nanodiamonds produced by explosion go through chemical refining with subsequent dispersing and fraction separation. The size of the particles produced defines their properties and spheres of technological application. In this research we used water ND suspensions of two kinds with average aggregate size of 10nm and aggregate size of 100 nm which were produced at the plant SKN in Snezhinsk, RF.

The goal of the work was to study the effect of outside factors during the production, transportation and storage of ND suspensions.

The initial suspensions were subjected to low temperature, freezing, heating, boiling and diluting with distilled water and then their stability was studied.

We also studied the influence of power of ultra-sound dispergator on the initial suspension.

To measure the suspension characteristics we used the following equipment: laser particle analyzer Nanotrak, electron microscope Jeol JSM-7001F, X-ray diffractometer Rigaku Ultima 4.

As a result of the studies and experiments made we got the info about the dependency of ND suspension aggregate stability on the given above factors and developed the method of reproduction of aggregates after freezing, we got preliminary results of ND dispersion in water using a new power method.