

OBTAINING OF TIN OXIDE BY THE SPARK DISCHARGE METHOD, WITH A CONTROLLED AVERAGE PARTICLE SIZE

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Tin oxide was obtained on an experimental setup operating on the principle of the spark discharge method [1,2]. The operating parameters of the method were selected in such a way as to achieve different dispersity of the powders.

The main parameters affecting the dispersion of powders when using the spark discharge method are: the carrier gas flow rate, the energy introduced into the discharge, and the discharge repetition rate. Three electrodes made of tin with a purity of 99.9999% were used as the starting material.

In the work, a study was carried out to determine the most optimal parameters of the method, which provide relatively high productivity, as well as the ability to control the dispersion of the resulting tin oxide powders.

Several series of experiments were carried out to obtain the dependence of the dispersion of the obtained powders on the parameters of the installation. Changes were made to such parameters as: carrier gas flow rate, storage capacity, trigger pulse repetition rate. The range of variation of the carrier gas flow was from 20 to 60 l/min. The repetition rate of the trigger pulses varied based on the storage capacity. For a capacitance of 13.6 nF, the frequency change was from 100 to 400 Hz, at 100 nF from 20 to 60 Hz, respectively. The charging voltage of the capacitor and the size of the gap between the electrodes remained approximately at the same level in all series of experiments, 8-10 kV and 3-4 mm, respectively.

REFERENCES

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