TOTAL CURRENT GRAIN MASS UNDER ALTERNATING ELECTRIC FIELD OF HIGH TENSION

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The theoretical position passage bit processes in the grain mass, under an electric field of high tension AC and separated from the dielectric electrode plates that revealed Mathematical formulas given total current bias currents and discharge current.

The electric field of high tension, bias current, discharge current, current density, field strength, grain weight.

In advanced countries pay great attention to environmentally sound technologies in agricultural production including electrophysical methods of treatment.

Among the famous electrotechnologies fundamentally new direction is the use of high intensity electric field, under which air inclusions in the grain mass occurring partial discharges that lead to ionization processes. As a consequence - in the whole volume of grain mass, located between the electrical ladies will emit ozone.

These processes are studied in detail when processing carried out in an electric field of high tension DC in order to stimulate grain. Unlike permanent electric fields in alternating electric fields, which should be used when disinfecting processing grain except bit currents must be considered bias current, which can significantly influence the distribution of the electric field in the grain mass, and therefore the result of processing.

To justify the discharge processes in the grain mass was developed electrical equivalent circuit.

In the electrical equivalent circuit grain weight is presented as a large number of circuits consisting of resistances and capacitances of dielectric plates, grains and air inclusions. The value of current passing through the grain mass depends on the

voltage on the plane-parallel electrodes, dielectric resistance plates that separate grain mass of electrodes and the resistance of the grain.

That is, in summing up the processing chamber to the electrodes of high voltage and gradually increase its leakage may occur through the grain mass bias current, and only after reaching the voltage to turn on the air breakdown value through grain mass and discharge current leakage may occur. And the value of breakdown voltage to turn on the air much will depend on the characteristics of the grain (form, humidity, pollution).

Conclusions

As a result of theoretical research established mathematical dependences for determining regime parameters such as the field strength and the current density at grain disinfecting treatment in the electric field of high tension AC.