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TECHNOLOGICAL PROCESSING OF GRAIN MASS IN A HIGH ELECTRIC FIELD

Usenko S.M., Naumenko O.V.
National University of Life and Environmental Sciences of Ukraine
e-mail: virf750@mail.ru

Development and activity of microorganisms, bacteria and mold fungi in storage is one of the main reasons for the deterioration of food and seed grain quality, and contributes to the loss of seed germination.

For the pest control of grain storage and to increase its sowing qualities are mainly used chemicals that have weaknesses such as high toxicity to humans, pollution, the emergence of pest resistance to chemicals, high cost of transportation and storage of chemicals, etc.

An alternative to traditional chemical treatment methods are electrical, biological, physical, mechanical, or are economically disadvantaged (with significant cost, require significant maintenance costs, etc.) or not effective enough.

Reputable international publication Journal of Entomology and the Journal of Economic Entomology marker that ozone is a potential alternative to traditional methods of processing grain. At certain doses of ozone treatment achieved complete destruction of pests of grain. But the drawback of traditional methods of ozone is the filing of a separate ozone generator ozone, which causes reduced efficiency of ozonation, ozone loss in pipelines.

The proposed method you grain weight is processed in an electric field of high tension without using a separate ozone generator and auxiliary equipment that is used to supply ozone from the generator to the products and the generation of ozone directly the product itself evenly without ventilation.

The security processing parameters are determined depending on the moisture content of the grain mass. After defining the operational parameters establishing

installation. In this case there are two options.

First option. Broadcaster is filled products for processing. Lights voltage regulator, and the source is automatically turned on high voltage pulsed current, after which high voltage is applied to electrodes. Grain stored in the electric field of high tension, with appropriate tension is occurring partial discharges in air inclusions grain mass. If you have a cell processing auxiliary zigzag electrode increases the amplitude and frequency of partial discharges, which leads to increased concentrations of ozone in the grain mass. After the processing time grain is unloaded.

A second option. Broadcaster is filled products for processing. Lights voltage regulator, thus automatically turns high voltage source, after which high voltage is applied to electrodes. Immediately exhaust shutter opens the corresponding opening angle. Products which electrodes separated by insulating plates, moving in an electric field of high tension. When appropriate electric field in the volume of production occurring partial discharges in air inclusions, where the uneven distribution of electric field the largest and the first in auxiliary electrodes in the cells strongly inhomogeneous electric field. At the appropriate level of the electric field in the whole volume of products produced ozone-agroionic mixture concentration is regulated by the electric field. Exposure time processing is caused by the passage of time the wheat from the top edge of the plane-parallel to the lower electrode. The rate of passage of the grain mass processing chamber exhaust opening angle adjustable shutter, changing area of the outlet chamber treatment and work electromagnetic vibrator. With the passage Broadcaster processing grain weight mixed zigzag through the auxiliary electrode. That grain processing continuously.

A method of processing grain mass storage has a number of significant advantages relative to existing, environmental friendliness; no effect on the biological structure of grain; to use treated seed for any purpose; low power consumption; low cost in comparison with processing chemicals used for disinfecting treatment; lack of transitional elements between the ozone generator and products.