

# CROWN-BIT ELEKTROOZONATOR FOR CONTINUOUS DISINFECTION OF EGGS IN INCUBATORS

**A. Barhatov**

**I. Kovalchuk**

**O. Rummyantsev**

**Y. Slivka**

**A. Popov**

*The recommendations for engineering calculations and design parameters for the system elektroozonatoriv ozone ambient air incubator.*

*Elektroozonator, Crown-bit ozone generator, the electric-tion, electrical methods of disinfection.*

Poultry farming - a dynamic sector of agriculture Ukraine developing. In industrial poultry in a high concentration of poultry, intensive methods of detention appeared the factors leading to the accumulation of microorganisms, changes in the composition of the microflora (biological community), and ultimately enhance the role of pathogenic microflora in the pathology of poultry.

Problems of households of drift and spread of infectious diseases which become not so relevant. According to the literature, the losses that poultry caused by infectious diseases, amounting to 15-25% of the cost of poultry products.

Great value during incubation with veterinary measures, as infections spread through hatchery in our time has taken quite widespread. Temperature and humidity in the incubator regime is favorable for the reproduction of microorganisms. Microorganisms can penetrate under the shell and cause the death of embryos and infected calves. From one infected eggs can perezarazytysya entire party chicks during incubation.

One of the promising methods is electro-ozone air pollution.

Ozone is a strong disinfectant property, environmentally compatible processes easily and quickly neutralized.

The analysis works on the research establishment corona discharge ozone available in the literature, considering the formation mechanism of ozone showed that the electric field and the distribution of electrons in the inner zone are crucial parameters of the formation of ozone in corona discharge.

The main parameter that determines the concentration of ozone in an incubation cabinet is elektroozonatora performance on ozone, which depends on the design and operational parameters elektroozonatora.

The purpose of research - to identify approaches to improve technology incubation of eggs in industrial poultry by continuous disinfection of eggs in the ozone-air during incubation.

Materials and methods of research. Using basic theoretical principles of air purification using ozone analysis ozonation processes in the field of air pollution corona discharge.

The criteria comparative evaluation elektroozonatoriv processes and ozone air pollution in an incubation cabinet equipped Crown-bit elektroozonatorom-cottrell.

Results. For comparative evaluation elektroozonatoriv developed criteria to reasonably match the selection elektroozonatoriv different processes:

1. Technological criteria (performance criterion elektroozonatora by ozone) to assess the possibility elektroozonatora ensure the necessary concentration of ozone in the air given volume

2. Criteria effectiveness of the design of the device. This criterion evaluates elektroozonatora dimensions, ie how effectively used elektroozonatora working volume.

3. The criterion of energy efficiency.

This criterion allows to compare devices for specific energy consumption for production of ozone per unit time.

Considered the operation of the system "incubation cabinet - elektroozonatori" in terms of processes of ozone-air mixture based on material balance control ozone in an incubation cabinet:

Based on the block diagram, material balance equation ozone cell incubator for time interval  $t, t + dt$  will be as follows

Solution equation when we consider these assumptions: ozone coming to the cabinet, immediately mixed in the air cabinet and its concentration is the same throughout the volume of the incubation cabinet.

### **Conclusions**

1. To improve the derivability and prevention of disease in birds should be carried out in a continuous dezobrobku hatching eggs cabinets and air during incubation. The practical interest is the research and development system elektroozonuvannya air, based on corona discharge, providing the necessary concentration of ozone in the air incubator.

2. Criteria comparative assessment of ozone generators that allow you to make an informed choice ozone generators for different processes APC.

3. Analytical dependence of the ozone concentration in the air incubation cabinet, which is equipped with ozonation system air time.

4. The developed method of calculation of basic engineering design parameters corona-discharge elektroozonatora.