

# OZONE APPLICATION IN THE POULTRY PROCESSING INDUSTRY AND AS A MEANS OF MINIMIZING THE EFFECT OF BIOLOGICAL WEAPONS AND THE AFTERMATH OF NATURAL AND MAN-MADE DISASTERS

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## Abstract

Ozone, an allotrope of oxygen has been widely used in different spheres of human activity since World War I to present day. It is used in medicine, in the chemical industry and chemical laboratories; for water treatment and disinfection of surgical tools owing to its antibacterial, antiviral, antiprotozoal and antifungal properties. Ozone is also used for biological waste treatment in abattoirs and sewage water treatment stations, as well as in granaries as a disinfectant against fungi, arthropod parasites, etc. Ozone could be uses principally in food industry as well as in the case of natural or manmade disaster. The purpose of this review is to present methods of how ozone can be applied in the poultry processing industry as well as to investigate its potential importance as a counteraction agent against biological weapons, as well as a useful purification agent in natural and manmade disaster crises.

A retrospective and content analysis on scientific articles was carried out. Over the last few years ozone has been ever more widely used in the food processing industry – for eliminating harmful micro-organisms, antibiotics, pesticides and mycotoxins which happen to be present in some foods. Various forms of ozone could be used as an effective disinfectant in the production of poultry meat and by-products. Ozone has a strong bactericidal action against a number of pathogens in food such as *Salmonella thyphimurium*, *Esheria coli*, *Shigella sonei*, *Vibrio cholera*, and *Staphylococcus aureus* and its toxins. In addition, ozone can be used to destroy *Aspergillus flavus* and its afla toxins, *Fuzarium* genus fungi and its mycotoxins, to inactivate spores of *Bacillus subtilis* and antibiotic resistant strains of *Micobacterium tuberculosis*, which makes it an effective for food poisoning prevention and also can be used to counteract the effects of biological weapons.

Ozone could be used as a reliable, anti-epidemiological agent in cases of natural and anthropogenic disasters.

**Key words:** Ozone, Meat, Food safety, Mycotoxins, Mycotoxicoses, Hygiene control, Risk assessment, Feed additives.