



## Why anolyte?

An increase in the number of bacteria resistant to most of the antibiotics or biocides in common use is a problem faced by industries and the community at large. More bacteria are resistant to moderate levels of biocides, with the bacteria in biofilms being the most difficult to control. High levels of biocides are used and this has detrimental effects on the environment, as biocides are toxic to humans, being carcinogenic, corrosive and producing intolerable odours. Electrolyzed water (anolyte) technology provides an alternative way of controlling microorganisms. Anolyte was shown in other countries to have antimicrobial properties. Anolyte, the positively charged solution is benign to fumes and corrosion caused by other biocides.

Since anolyte is eco-friendly and present no problems to the environment, it provides a good alternative for controlling microorganisms instead of chemical control. The minimum inhibitory concentration (MIC) of anolyte and its antimicrobial properties against different microorganisms in suspension was evaluated. The 1:10 and neat anolyte gave a 100% kill of all organisms tested while 1:20 dilution gave variable killing percentages ranging from 31% to 100%. Minimum inhibitory concentration was found to be 20% for most Gram positives and 50% for most Gram negatives. Anolyte did have some antimicrobial properties with MIC differing amongst different organisms.

Biofilm control using different concentrations of anolyte and sodium hypochlorite was evaluated. Neat and 1: 10 anolyte removed biofilm while 1: 100 did not have effect on biofilm. The 100 and 300 ppm sodium hypochlorite were effective in removing the biofilm while 10, 25 and 50 ppm could not remove it.

Hand wash trials and hospital disinfection using anolyte resulted in a decrease in the number of cfu/25cm<sup>3</sup> after treatment. Effective disinfection of hands and hospital equipment was achieved.

Different surfaces in a milking parlour were treated with anolyte to test its suitability to disinfect a milking parlour. High numbers of microorganisms and spreaders were observed from the plates before the surfaces were cleaned with anolyte. All spreaders were identified as sporeformers. Results were generally better when anolyte was used as a disinfectant, being able to eliminate spreaders as well.

Treatment of chicken carcasses with anolyte to evaluate its effect on their shelf life was also tested. The number of colony forming units on chicken carcasses decreased after treatment of the carcasses with anolyte.

Anolyte is therefore a naturally safe disinfectant that could be used in most fields including water distribution systems and industries for biofilm control, hospitals for minimising cross infection, food industries for increasing quality and shelf life of food and also in households for washing hands.