

HALOX Products Fact Sheet

Chlorine Dioxide (ClO₂) For Food And Beverage

Introduction

Chlorine dioxide provides excellent microbiological control for brewing and bottling, and in the preparation of fruit and vegetables, poultry and other meats, fish, and dairy. ClO₂ provides excellent microbiological control in flume waters, packaging operations and process disinfection. ClO₂ does not react with most "organics" in flume water, which makes it a very effective disinfectant. It also neutralizes foul smelling secondary and tertiary amines formed in the meat packing industry. Dirt and organic compounds from cleaning and packaging provide nutrients for microorganisms. As food processing plants recycle more water, organic loading and microbiological growth increase. In beverage processing, water-lubricated conveyor lines are also prone to bacterial contamination and biofilm formation.



Chlorine dioxide

Halox chlorine dioxide is a stable, dissolved gas that is a strong bactericide and virucide at concentrations as low as 0.1 ppm in water. With minimal contact time, ClO₂ is highly effective against many pathogenic organisms such as Listeria, E. Coli, Salmonella, amoebal cysts, Giardia cysts, Legionella, and Cryptosporidium. ClO₂ reduces biofilm and significantly impedes regrowth. It is effective over a wide pH range. At recommended levels, ClO₂ has no adverse taste or odor. ClO₂ reduces biofilms so bacterial regrowth is significantly impeded.

ClO₂ does not ionize to form weak acids (as chlorine and bromine do) in aqueous solutions. This allows ClO₂ to be effective over a wide pH range. ClO₂ is approved and recommended by the U. S. Environmental Protection Agency as an environmentally friendly drinking water additive to replace chlorine. Because U.S. Federal law prohibits the transportation of ClO₂, chlorine dioxide is generated on-site at the point-of-use.

Chlorine Dioxide Approvals

- United States Environmental Protection Agency (USEPA)
- United States Food and Drug Administration (FDA)
- Building Services Research and Information Association of the UK (BSRIA)

Halox SRE Electrochemical Chlorine Dioxide Generators

In February 2005, the U. S Food and Drug Administration amended the food additive regulations (21 CFR Part 173.3) to permit the manufacture of ClO₂ by electrolysis of an aqueous solution of sodium chlorite. In ruling the FDA stated, "...the chlorine dioxide generated by the electrolytic process will have the same intended technical effect and use as the chlorine dioxide produced by the currently-approved methods." The ruling further went on to state that the additive produced i.e. chlorine dioxide: "...may be used as an antimicrobial agent in water used in poultry processing in an amount not to exceed 3 parts per million (ppm) residual chlorine dioxide."

"The additive may be used as an antimicrobial agent in water used to wash fruits and vegetables that are not raw agricultural commodities in an amount not to exceed 3 ppm residual ClO₂. Treatment of the fruits and vegetables with chlorine dioxide shall be followed by a potable water rinse or by blanching, cooking, or canning."

Halox SRE electrochemical systems use electricity in the unit's cassette(s) to generate a small amount of acid to convert a single precursor, sodium chlorite, into ClO₂ and NaCl. There is no acid to handle, no chlorine and no bleach. Halox generators produce up to 100 g/hr (5.5 lb/day) of ClO₂.

