

HORTICULTURE

Reduced contamination level and improved production performance and profitability

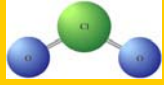

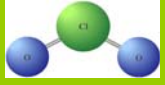

The only way to address and eliminate biofilm risks is to strip the biofilm, prevent its re-growth and kill the microbial contamination



Benefits *dutrion*[®] "golden" Chlorine Dioxide:

- Very fast and long active in waterlines compare to other disinfectants being used for cleaning water systems
- Does not have pH limitation and is not corrosive on equipment
- Final elimination of (waterborne) pathogens in water systems
- Effective & fast sanitation program with spraying & fogging
- Bacteria, algae and fungi control on rooted or un-rooted cuttings and cut flowers, seedbed soil and planting cubes
- Treats, controls, inhibits algae and fungi in greenhouses and irrigation lines, filter systems, walls, ceilings and floors
- Easy to apply, easy to monitor and very safe
- Very cost effective compare to all other disinfectants
- LOW INVESTMENT COSTS TO START; use existing dosing pump
- Does not react with ammonia to form chloramines

Advantages *dutrion*[®] for Horticultural applications:

<u>GREENHOUSES</u>	<u>OPEN FIELD PRODUCTION</u>
 	 
<p>Prevents clogged dripping systems Prevents cross contamination in recycled water Effective with higher organic loads Low concentrations do not harm fertilizers Controls algae growth in cooling systems Long active in water distribution systems Not corrosive on equipment Treatment of specific diseases with clo2 Disinfection of floor, wall, pipe line, machinery Not phytotoxic to plants</p>	<p>Prevents clogged dripping systems Lower water evaporation from surfaces No pH limitations from 4-10 pH Penetrates deep in surfaces to eliminate pathogens Longer shelf life of treated fruits and vegetables Extra water flow into plants Clean lines for adding water soluble additives Always pure water till the far end Storage disinfection with clo2 spray Not phytotoxic to plants</p>
<p><u>EASY TO APPLY PER LINE OR WHOLE OPERATION</u></p>	<p><u>NO GENERATOR (risk, costs, insurance, extra labor)</u></p>
<p><u>UNIQUE WATER DOSING PROGRAM</u></p>	<p><u>LOWER DOSAGE REQUIREMENT WITH DUTRION[®]</u></p>

***dutrion*[®] powder**
 most affordable and friendly
chlorine dioxide solution for horticultural applications



HORTI & PATHOGEN REDUCTION

Benefits Chlorine Dioxide!

CLO2 Germicidal Spectrum

Bacteria

Pseudomonas Aeruginosa
 Campylobacter Jejuni
 Pseudomona Specie
 Flavobacterium Species
 Enterobarcer Cloaceae
 Yersinia Enterolitica
 Enterobarcter Hafnia
 Clostridium Sporogenus
 Proteus Vulgaris
 Clostridium Dificile
 Klebsiella Pneumoniae
 Clostridium Perfingens
 Salmonella Typhi
 Fusobacterium Nucleatum
 Salmonella Enteritidis
 Bacilus Subtilis
 Salmonella Gallinarum
 Bacilus Circulans
 Salmonella Typhimorium
 Bacilus Megatarium
 Salmonella Choleraesuis
 Bacilus Cereus
 Salmonella Typhosa
 Bifedibacter Liberium
 Corynebacterium Nucleatum
 Staphylococcus Aureus
 Sarcinae Lutae
 Staphylococcus epidermia
 Streptococcus Pyrogenes
 Streptococcus Faecalis
 Strep 1, 2, 3.
 Mycobacteroi Bovis
 Mycobacterium Smegmatis
 Mycobacterium kansaaii

- Removal of biofilm which hinders efficiency of equipment
- Longer life of equipment, less down time
- Consumer confidence and acceptability
- Disinfection (sterilization) capabilities are not diminished at all in the presence of fats, oils, proteins, body fluids etc. because it has very selective and very few chemical reactions
- Strongly soluble in water, therefore, it has a long-lasting residual which reduces the potential for cross infection or re-contamination
- Broad spectrum, fast acting disinfectant, effective against a wide range of bacteria, spores, fungi, and viruses at relatively low concentration and short contact periods
- It is colorless, has a mild medicinal odor and removes if any odor, low corrosively to metals and the lowest acute toxicity rating from EPA
- High efficacy against E.coli, Salmonella, Listeria, Aspergillus, Penicillium, Staphylococcus etc. etc. etc. (see spectrum)
- High efficacy is obtained irrespective of pH
- Non-corrosive and non-staining of equipment
- Easy to apply and to monitor
- Meets HACCP (food safety) management requirements
- Cost Effective in many applications

CLO2 Germicidal Spectrum

Fungi

Candida Albicans
 Trichophyton Rubrum
 Scopulariosis Species
 Aspergillus Niger
 Trichophyton Mentagrophytes
 Aspergillus Flavus
 Mucor Species
 Fusarium Specie
 Saahromyces Cerevisiae
 Fonsecaea Pedrosoi

Virus

Herpes Virus I
 Poliovirus
 Herpes Virus II
 Encephalomyocerditis (EMS)
 Adenovirus Echovirus
 Vaccina Virus
 Coxsakievirus
 Vesicular Stomatitis Virus (VSV)
 Influenza
 Para Influenza
 Feline Parvovirus
 Bluetongue Virus
 Mouse Flu
 Mouse Hepatitis Virus (MHV)
 Minute Virus of Mice (MVM)
 Mouse Encephalomyelitis Virus
 New Castle Disease Virus
 Mouse Polio Virus (MEV)
 Iridovirus
 Pertiviries – Togaviridae

Others

Vidrio Cholerae
 Culex Quinquifasiatus
 Mycoplasm



The chlorine dioxide process is "extraordinarily" better than other methods to eliminate pathogens in water sytems.



Powerful Water Treatment