

# HORTISAN®

## IRRIGATION SYSTEM CLEANER & BIOFILM CONTROL SOLUTION



Large volumes of water are used during the growing and harvesting of fruits, vegetables, food-crops and other plants, so managing water quality and controlling microbial activity in irrigation systems is essential for sustaining a successful and profitable organisation.

If you have an irrigation system you probably have biofilm in it, potentially causing operational problems and blockages in your pipelines, as well as having negative impacts on water quality, plant health and crop yields. Biofilm consumes the oxygen in irrigation water, often dramatically reducing critical dissolved oxygen levels to plants, and biofilm also dispenses potentially pathogenic microorganisms to your plants every time you irrigate, which can lead to plant nutrient deficiency, stunted growth and devastating plant and crop diseases, resulting in substantial yield losses.

**HORTISAN** is Chlorine Dioxide ( $\text{ClO}_2$ ) gas in an aqueous solution that is an exceptionally powerful broad-spectrum bactericide, algacide and fungicide, universally recognised as one of the most effective, safest and environmentally harmless biocides available and is used for a wide range of applications where effective control of microbial activity is essential. This oxidising agent destroys biofilms and prevents further formation, providing long-term disinfectant residual, to control water-borne microbial pathogens and ensure complete biosecurity.

### KEY BENEFITS

- **ENHANCE THE MICROBIAL QUALITY OF YOUR WATER**
- **CONTROL HARMFUL PLANT PATHOGENS**
- **SUSTAINABLY IMPROVE CROP GROWTH, HEALTH & QUALITY**
- **OPTIMISE CROP YIELDS**
- **MAINTAIN OPTIMUM SYSTEM EFFICIENCY & RELIABILITY**

# **FEATURES & BENEFITS**

**HORTISAN** - An exceptionally powerful broad-spectrum bactericide, virucide, sporicide, fungicide and algaecide that has multiple important advantages over standard sanitisers and traditional high-risk chemicals such as hydrogen peroxide, chlorine and sodium hypochlorite.

**HORTISAN** has proven to be consistently reliable and is an especially effective disinfectant because it is impossible for bacteria, fungi and viruses to develop a resistance to it.

*Alternaria*

*Botrytis (Grey mould)*

*Cryptosporiopsis perennans*

*Erwinia amylovora (Fire-Blight)*

*Fusarium oxysporum*

*Helminthosporium*

*Penicillium expansum (Blue mould)*

*Phytophthora cinnamomi (Root rot or dieback)*

*Plasmopara viticola*

*Pythium ultimum*

*Sclerotinia*

*Scopulariopsis*

*Stemphylium*

*Thielaviopsis basicola*

*Agrobacterium*

*Campylobacter*

*Cryptosporidium*

*Enterobacter*

*E. coli*

*Flavobacterium*

*Giardia*

*Legionella*

*Listeria*

*Mucor piriformis*

*Mycobacterium*

*Pseudomonas*

*Verticillium*

*Xanthomonas*

**HIGH PERFORMANCE** – Consistently and rapidly eliminates bacteria, spores, viruses, fungus, mould, mildew, algae, yeasts, protozoa, as well as problematic biofilms and other waterborne biological pollutants. ClO<sub>2</sub> has over 2.5 X the oxidising power of chlorine and has proven to be exceptionally effective and sustainable at low concentrations.

**SAFE TO USE** – Non-toxic, non-carcinogenic, non-flammable and non-hazardous to handle or transport. A chlorine-free, ready-to-dilute single pack solution with no mixing of dangerous chemicals, ensuring staff safety.

**ECONOMICAL** - Its efficacy at low concentrations and short contact times makes it very economical in use, with low capital & operating costs. Being a ready-to-dilute single pack solution it is also easy to handle, monitor and test. It costs about the same as other sanitisers but is more versatile and beneficial to the environment.

**ECO-FRIENDLY** - Biodegradable and breaks down to common salt (NaCl). Does not chlorinate or form any dangerous disinfection by-products (DBP's) such as AOX, HAA or THM's. It also breaks down quickly and will not leave any harmful residues or add toxic deposits to soil, making it the most environmentally harmless biocide available.

**NON-TAINTING** – Does not affect the taste, smell or colour of produce. Does not leave any harmful residues and does not corrode irrigation pipework or equipment.

**APPROVALS:** MPI – ACVM Registered: P008106

## **TYPICAL APPLICATIONS**

Regardless of the source of your water, microbes and bacterial organisms attach themselves to wetted surfaces in water facilities, and then protect themselves from most disinfecting agents by forming biofilms, which are likely to be the largest source of water-borne plant pathogens that can lead to plant nutrient deficiency, stunted growth and devastating plant and crop diseases, resulting in substantial yield losses.

**HORTISAN** - Is used wherever the highest standards of disinfection are required. This proven fast and broad-spectrum solution is exceptionally effective and is used for multiple horticultural applications, disinfecting water and entire water facilities to eliminate bacterial, viral, fungal and algal pathogenic microorganisms that can result in plant diseases and biological contamination, without leaving a chemical residue or forming harmful disinfection by-products.

ClO<sub>2</sub> has high water solubility, remaining as an active dissolved gas in water, giving it the ability to retain its biocidal effectiveness and kill organisms within the water as well as on any surfaces within irrigation systems, reaching parts that other sanitisers simply cannot. ClO<sub>2</sub> has a neutral pH value in water and is effective in a wide pH spectrum (pH4 – pH10).

The solution is easily implemented into new or existing systems via automatic inline dosing to ensure complete protection from harmful pathogens and biological contaminants.

## **WATER STORAGE FACILITIES**

**HORTISAN** – Improve and maintain the microbial quality of water, and disinfect water storage vessels. Eradicate and control the development of biofilms occurring on the inner surface of storage vessels, which offer a suitable medium for the growth of microorganisms and other plant pathogens, which consequently contributes to the deterioration of water quality and cause major plant and crop diseases.

- Treat the entire system at source, to eliminate harmful plant pathogens & prevent cross-contamination.
- Provides long-term residual disinfection, ensuring complete protection from microbial pollutants.
- Control iron & manganese in your irrigation systems.

## **IRRIGATION SYSTEMS**

**HORTISAN** – Used to effectively control harmful biofilms and other biological contaminants to prevent plant and crop diseases, and maintain optimum water flow in all irrigation systems, including drip irrigation and overhead misting, as well as hydroponics and aquaponics. By effectively dosing the water with low levels of this drinking water approved biocide, biological loading of the water can be minimised, and the spread of disease significantly reduced.

- Disinfect the inside of irrigation lines to prevent the spread of plant pathogens.
- Remove & prevent slime build-up to optimise water flow & pressure in irrigation lines, as well as preventing clogging of sprinklers, drippers & filters.
- Penetrates biofilms & effectively inactivates the biofilm microbes that feed off nutrients that are meant for plants, preventing plant nutrient deficiency.

# HORTISAN®

Our technological advances have made it possible for us to produce a consistent 1000ppm aqueous solution of ClO<sub>2</sub> which has a minimum 6-month shelf-life and is sold in various container sizes. With our experienced Chemists we are ready to assist you in every aspect of the evaluation, design, implementation and long-term support of your Chlorine Dioxide requirements.

**HORTISAN®** is a registered disinfectant, manufactured and marketed in NZ by:

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As the actual conditions of use and storage are out of our control, no liability is accepted for any loss or damage caused directly or indirectly through the use of our products. Intending users should satisfy themselves as to the suitability of this product for any particular purpose, by carrying out appropriate tests. For more information, usage instructions and health & safety directions please refer to our website.

USE DISINFECTANTS SAFELY. ALWAYS READ THE LABEL AND SDS BEFORE USE. HORTISAN® IS A REGISTERED TRADEMARK. ALL RIGHTS RESERVED.