

SBT SCIENCES CC

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Main Member: G S Venter Reg. No: 2005/096679/23

BIOX 5000

A TECHNOLOGICALLY ADVANCED, STABILIZED CHLORINE DIOXIDE FORMULATION

Chlorine Dioxide is a true gas in solution which does not leave any residue on products or surfaces. Although the word chlorine is used in Chlorine Dioxide (it has none of the harmful characteristics of chlorine) Chlorine is not involved in any of the Chlorine Dioxide reaction pathways. Chlorine Dioxide is strictly an oxidant. Where oxidation only occurs not halogenation.

- BROAD SPECTRUM BIOCIDAL SANITIZER
- BACTERICIDE
- FUNGICIDE
- ALGAECIDE
- SPORACIDE
- VIRICIDE
- REMOVES BIOFILM

TYPICAL USES IN THE HORTICULTURAL / AGRICULTURAL INDUSTRIES

- SOIL SANITIZATION
- PLANTING OF CUTTINGS AND SEEDLINGS
- FOLIAR SURFACE SANITIZATION
- BIOFILM REMOVAL IN DRIPPER SYSTEMS AND WATER LINES AND TANKS
- MISTING SYSTEMS
- CUT FLOWER PRODUCTION
- TREATMENT OF ALGAE ON WET WALLS
- HARD SURFACE SANITIZATION
- NURSERY WATER TREATMENT
- HYDROPONICS
- SANITIZER FOR GROWING MEDIUM e.g. PERLITE, VERMICULITE, PEAT
- SURFACE STERILIZATION OF BULBS, CORMS AND SEEDS
- POST-HARVEST RINSING OF PREPARED PRODUCE

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APPLICATIONS

SOIL SANITIZATION:

Soil Drenching: Apply late afternoon. Pre-wet soil well. Dilute 50 L Biox 5000 to 500 litres of good quality water – apply per hectare. Drench into soil. Wait 2 days before proceeding.

PLANTING CUTTINGS AND SEEDLINGS:

Apply soil drench then plant cuttings and seedlings. Drench over seedlings/cuttings with 15 litres Biox 5000 per 5 000 litres of water (0.3%) per 2 000 sq.m

Note: Prevention is better than cure. Once planted, treat the plants once weekly with a foliar spray of Biox 5000 at 5 litres per 1 000 litres of water (0.5%) per hectare.

FOLIAR SURFACE SANITIZATION:

Use 5 litres Biox 5000 per 1 000 litres of water (0.5%) per hectare. If there is heavy concentration, spray two to three times per week. As a preventative maintenance spray once a week.

Note: Use a wetting agent such as Agral 90, Hygrowet, Complement etc. to ensure even wettability and dispersion. Dose as per instructions (usually 10 – 20 ml/100 litres)

BIOFILM REMOVAL IN DRIPPER SYSTEMS AND WATER LINES:

Use 3 litres Biox 5000 per 1 000 litres of water (0.3%) – Apply three times in the first week.

Thereafter 1 to 2 litres Biox 5000 per 1 000 litres of water (0.1 to 0.2%) weekly or fortnightly as required.

Note: Always rinse utensils and lines before applying Biox 5000.

MISTING SYSTEMS:

Use 2 litres Biox 5000 per 1 000 litres of water (0.2%)

CUT FLOWER PRODUCTION:

Use 2 LITRES Biox 5000 per 1 000 litres of water (0.2%)

TREATMENT OF ALGAE AND WET WALLS:

Shock Treatment: Use 1 to 2 litres Biox 5000 per 100 litres of water (1 to 2% solution)

Preventative Maintenance: Use 3 to 5 litres per 1 000 litres of water (0.3 to 0.5% solution) weekly or as the situation requires.

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HARD SURFACE SANITIZATION: - Floors, Walls, Working Surfaces, Pots, Implements.

Use 2 litres Biox 5000 per 100 litres of water (2%)

NURSERY WATER TREATMENT:

Shock Treatment: Use 4 litres Biox 5000 per 1 000 litres of water (0.4%)

Maintenance: Use 500 millilitres to 1 liter Biox 5000 per 1 000 litres of water (0.05 to 0.1%)

HYDROPONICS:

Shock Treatment: Use 4 litres Biox 5000 per 1 000 litres of water (0.4%)

Maintenance: Use 2 litres Biox 5000 per 1 000 litres of water (0.2%)

SANITIZER FOR GROWING MEDIUM: e.g. perlite, vermiculite, peat, etc.

Use 1 to 2 litres Biox 5000 per 100 litres of water (1 to 2%)

SURFACE STERILIZATION OF BULBS, CORMS AND SEEDS: Prior to storage

Use 4 litres Biox 5000 per 1 000 litres of water (0.4%)

POST HARVEST RINSING OF PREPARED PRODUCE: Vegetables, Salads etc.

Use 2 – 4 litres Biox 5000 per 1 000 litres of water (0.2% - 0.4%)

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ACTIVATION OF BIOX 5000

Biox 5000 – Stabilized Chlorine Dioxide 5000 ppm
Activator P – 10 % Solution of food grade Phosphoric Acid
Activation Procedure:

Biox 5000 is supplied in blue 25 L containers (U.V barrier – store in cool dry area away from direct sunlight.)

25 L Biox 5000

500 ml Activator P

Add the Activator P to the 25 L Biox 5000, replace the cap, mix well. Allow to activate for 18 to 24 hours.

CHEMICAL REACTIONS WITH BIOX 5000

DO NOT mix Biox 5000 with any other chemicals or nutrients.

Biox 5000 will react with the following chemicals:

Iron, Nitrogen Compounds, Sulphides/Disulphides, Manganese, Secondary Amines/Tertiary Amines, Carbohydrates, Reduced Sulphur Compounds, Nickel, Phenols, Aldehydes.

There are some significant compounds Biox 5000 will not react with:

Alcohols, Primary Amines, Glycols, Ethers, Inorganic Compounds, Organic Acids and Unsubstituted Aromatics.

OTHER IMPORTANT NOTES:

1. Keep spray pressure below 4 bar
2. Requires no PH adjustors (PH range 2 – 12)
3. Can use wetting / spreading agents containing Glycols and/or Alcohols

REGULATORY APPROVALS:

1. Environmental Protection Agency – E.P.A registration number 9150-2
2. **Biox 5000** complies with SABS 1853 with regards to disinfectants and pure disinfectants for the use in the food industry.
3. Reg. Nr. Wet 5GNR529/271983/070/0083 and is Euro Gap compliant - Cologne 19 January 2007.

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TO CALCULATE THE AMOUNT OF BIOX 5000 NEEDED TO REMOVE BIOFILM FROM DRIPPER SYSTEMS:

Say your average system has 5 600 metres of piping per hectare.

1. Calculate the cross section (diameter) say 17 mm
2. Then calculate as follows:

$$\begin{aligned} & \frac{\text{Pi} \times \text{diameter squared (note Pi = 3.14)}}{4} \\ = & \frac{3.14 \times 0.017 \times 0.017}{4} \\ = & 0.0002268 \end{aligned}$$

3. Multiply by the length

$$= 0.0002268 \times 5\,600 = 1.27$$

4. Convert to litres:

$$\begin{aligned} & \text{Multiply by 1 000} \\ = & 1.27 \times 1\,000 \\ = & 1\,270 \text{ litres required to flood the system} \end{aligned}$$

SHOCK TREATMENT

Apply 2 to 3 litres Biox 5000 per 1 000 litres of water. Flood the system overnight. Drain the next morning by opening the ends of the dripper lines.

Apply 3 times in the first week.

PREVENTATIVE MAINTENANCE TREATMENT

Apply 1 to 2 litres Biox 5000 per 1 000 litres of water. Flood the system overnight. Drain the next morning by opening the ends of the dripper lines.

Apply once a week or fortnightly as required.

Note: Overhead irrigation Systems – Centre Pivots etc: To remove Biofilm, unblock nozzles:

DOSAGE: 2 L Biox 5000 per 1 000 L of water