



## MATERIAL SAFETY DATA SHEET

### BIOXX 5000

<b>1</b>	<b><u>Chemical Product and Company Identification</u></b>
Common Name:	Oxychlorine Solution
Product Use:	Generation of chlorine dioxide for use as a disinfectant/oxidant or for bleaching of textiles or other fibres
For Chemical Emergency Contact:	SBT SCIENCES CC +27116783024 Cell: +27836359475
<b>2</b>	<b><u>Composition/Information on Ingredients</u></b>
Ingredient:	Oxychlorine Compounds
CAS No:	In TSCA 5 - 10% Wt
Buffer(s)	In TSCA 1 - 5% Wt
<b>3</b>	<b><u>Physical Properties</u></b>
Form:	Clear pale yellow green solution
Odour:	Chlorine or ozone like odour
Appearance	Clear pale yellow green solution
pH	8.5 - 9.5
Boiling point:	105° C
Specific gravity(H <sub>2</sub> O+1)	1.065 to 1.095
Vapour pressure	Approximates water
Solubility in water	Complete solubility
<b>4</b>	<b><u>Hazard Identification</u></b>
Hazardous reactions:	Contact with acids, organic materials, reducing agents or chlorine donors will produce chlorine dioxide gas and heat. The lower explosive limit (LEL) for chlorine dioxide is 10%. Increases flammability of combustible, organic or other readily oxidizable materials. If allowed to dry, product can be easily ignited by heat or friction
Supply hazard classification:	Irritating to eyes, skin and respiratory tract Harmful if swallowed.

## SECTION 3: HAZARDS IDENTIFICATION

## EMERGENCY OVERVIEW

Clear pale yellow green solution

Chlorine or ozone like odor

Flash Point: Not Applicable

Causes eye, skin and respiratory tract irritation.  
May cause burns.

Harmful if swallowed. Causes irritation of the gastrointestinal tract, nausea, vomiting and diarrhea.

Oxidizing material. Increases flammability of combustible, organic or other readily oxidizable materials.

Contact with acids, organic materials, reducing agents or chlorine donors will produce chlorine dioxide gas and heat. The lower explosive limit (LEL) for chlorine dioxide is 10%. Flush area with large amounts of air to keep the chlorine dioxide concentration below 10%.

If allowed to dry, this product can be easily ignited by heat or friction.

Do not allow this product to dry on cloth. Oxidation can cause a fire hazard.

## ROUTES OF ENTRY

Eyes? YES

Skin? YES

Inhalation? YES

Ingestion? YES

## POTENTIAL HEALTH EFFECTS

EYE CONTACT causes irritation and may cause burns.

SKIN CONTACT causes irritation. Prolonged contact may cause dermatitis or burns.

INHALATION causes respiratory tract and mucous membrane irritation with sore throat, coughing and difficulty breathing. Intense exposures may result in delayed pulmonary edema.

INGESTION is harmful. Causes irritation of the gastrointestinal tract, nausea, vomiting and diarrhea.

NOTE: Upon contact with acids, organic materials, reducing agents or chlorine donors, this product will release CHLORINE DIOXIDE gas. Inhalation of chlorine dioxide can cause respiratory tract irritation, coughing, wheezing and burns of the mucous membranes. Inhalation of large amounts may lead to pulmonary edema and bronchitis. Direct contact with chlorine dioxide causes eye and skin irritation and may cause

burns. Chlorine dioxide is toxic by ingestion.

**CARCINOGENICITY**

NTP? NO

IARC? NO

OSHA? NO

**CHRONIC HEALTH HAZARDS**

Oxychlorine compounds have been shown to cause blood disorders in laboratory animals.

Prolonged or repeated inhalation of CHLORINE DIOXIDE gas may cause chronic bronchitis or emphysema.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE**

May aggravate existing medical conditions such as asthma, bronchitis or any other respiratory ailment.

NOTE: See Section 8 for Exposure Limits, Section 11 for Toxicological Information and Section 12 for Ecological Information.

**SECTION 4: FIRST AID MEASURES**

**EYE CONTACT:** Immediately flush with plenty of water for at least 15 minutes. Hold eyelids open while flushing. If irritation persists, call a physician.

**SKIN CONTACT:** Immediately wash off in flowing water or shower. To prevent fire, rinse contaminated clothing until chemical is fully removed. If irritation persists, get medical attention.

**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician.

**INGESTION:** If person is conscious and able to swallow, give large amounts of water to dilute. If vomiting occurs, keep head below hips to help prevent aspiration. Get medical attention immediately.

**SECTION 5: FIRE-FIGHTING MEASURES**

Flash Point: Not Applicable  
Auto-Ignition: Not Determined  
LEL: Not Applicable  
UEL: Not Applicable

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NFPA HAZARD CLASSIFICATION

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Code: 1001  
Date: 27 OCT 2000

Health: 2                      Flammable: 1                      Reactivity: 0                      Special: OX

HMIS HAZARD CLASSIFICATION

Health: 2                      Flammable: 1                      Reactivity: 0                      Special: B

EXTINGUISHING MEDIA

Flood with water. Apply water from a protected location or from a safe distance.

SPECIAL FIRE FIGHTING PROCEDURES

Wear NIOSH/MSHA approved positive-pressure self-contained breathing apparatus and protective clothing as specified in 29 CFR 1910.156.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Oxidizing material. Increases flammability of combustible, organic or other readily oxidizable materials.

Contact with acids, organic materials, reducing agents or chlorine donors will produce chlorine dioxide gas and heat. The lower explosive limit (LEL) for chlorine dioxide is 10%. Flush area with large amounts of air to keep the chlorine dioxide concentration below 10%.

If allowed to dry, this product can be easily ignited by heat or friction.

Do not allow this product to dry on cloth. Oxidation can cause a fire hazard.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Flush with water to dilute. Do not allow contact with rags, paper or other oxidizable materials. For large spills, evacuate area, contain liquid and transfer to closed polyethylene drums. Prevent contact with oxidizers and acids. Do not allow to dry. Keep out of water supply. Flush area with water after liquid is removed.

**\*\*NOTE\*\*** In the event of an accidental release of this material, the above procedures should be followed. Additionally, proper exposure controls and personal protection equipment should be used (see Section 8: Exposure Control/Personal Protection), and disposal of the material should be in accordance with Section 13: Disposal Considerations.

## SECTION 7: HANDLING AND STORAGE

Do not allow solution to evaporate to dryness.  
Protect from heat, freezing and ultraviolet light.  
Keep container closed.  
Store in a cool, dry location away from incompatible materials.  
Keep away from food and feed products.  
Wash thoroughly after handling.

Do not breathe vapors or mists.

Avoid contact with eyes, skin and clothing.

Use with adequate ventilation.

Provide a safety shower and eye wash close to where this material is being used.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS INGREDIENT	PEL-OSHA	TLV-ACGIH
OXYCHLORINE COMPOUNDS CAS NO.: IN TSCA	None Established	None Established
BUFFER(S) CAS NO.: IN TSCA	None Established	None Established

NOTE: Upon contact with acids, organic materials, reducing agents or chlorine donors, this product will release CHLORINE DIOXIDE. The OSHA PEL, as well as the ACGIH TLV, for chlorine dioxide is 0.1 ppm, 0.3 ppm STEL.

Unless otherwise noted, all values are reported as 8-hour Time-Weighted Averages (TWAs) and total dust (particulates only). All ACGIH TLVs refer to the 1998 Standards. All OSHA PELs refer to 29 CFR Part 1910 Air Contaminants: Final Rule, January 19, 1989.

## RESPIRATORY PROTECTION

A NIOSH/MSHA-approved respirator, suitable for use in a chlorine or chlorine dioxide atmosphere, as necessary.  
If respiratory protection is used, follow all requirements for respiratory programs set forth in OSHA regulations (29 CFR 1910.139).

**VENTILATION**

General; local exhaust ventilation as necessary to control any air contaminants to within their PELs or TLVs during the use of this product.

**PROTECTIVE EQUIPMENT**

Safety glasses (with side shields).  
Rubber or neoprene gloves.  
Body protection as necessary to prevent skin contact.

**PERSONNEL SAMPLING PROCEDURE**

No NIOSH Method established.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

Appearance: Clear pale yellow green solution  
Odor: Chlorine or ozone like odor  
Boiling Point: 105 °C  
Specific Gravity (H<sub>2</sub>O=1): 1.065 to 1.095  
Melting Point: Not Determined  
Vapor Pressure (mm Hg): Approximates water  
Vapor Density (Air=1): Not Determined  
Evaporation Rate: Not Determined  
% Solubility In Water: Completely soluble  
pH: 8.5 to 9.5

**SECTION 10: STABILITY AND REACTIVITY**

Stability: Stable.  
Avoid: Heat, drying, freezing and ultraviolet light.

**INCOMPATIBILITY (Materials to Avoid)**

Contact with acids, organic materials, reducing agents and chlorine donors will release toxic chlorine dioxide.

**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS**

Thermal decomposition will produce toxic chlorine dioxide gas.

Polymerization: Polymerization will not occur.  
Avoid: Not applicable.

## SECTION 11: TOXICOLOGICAL INFORMATION

CHEMICAL NAME	% Wt. LD50	LC50
<b>OXYCHLORINE COMPOUNDS</b>		
CAS NO.: IN TSCA	5-10	See product data Not Available reported under Other Studies.
<b>BUFFER(S)</b>		
CAS NO.: IN TSCA	1-5	See product data Not Available reported under Other Studies.

## OTHER STUDIES

Product testing has shown the following:

Acute Oral LD50 (rat) = 1075 mg/kg (combined); 2250 mg/kg (males);  
0.78 mg/kg (females)

Acute Dermal LD50 (rat) > 2000 mg/kg

Primary Dermal Irritation Index (rabbit) = 3.8 (72 hrs); 2.3 (14  
days) (moderately irritating)

Primary Eye Irritation (rabbit) = moderately irritating

Acute Inhalation LC50 (rat) > 6.53 mg/liter/4 hr.

Acute, subacute and chronic toxicity (organs & systems):

- 1) Undiluted Anthium Dioxide(R) was toxic to mice when fed 0.5ml by gavage.
- 2) 1:10 to 1:240 dilutions were found to be non-toxic when fed by stomach trocar.
- 3) Chronic feeding tests using gavage and diluted Anthium Dioxide(R) in drinking water showed no toxic effects.

NOTE: The oral LD50 in rats for chlorine dioxide has been reported as 292 mg/kg.

NOTE: See Sections 3, 8 and 12 for additional information.

## SECTION 12: ECOLOGICAL INFORMATION

## ECOTOXICITY

Toxic to fish and aquatic organisms.

## ENVIRONMENTAL FATE

No data available.

## SECTION 13: DISPOSAL CONSIDERATIONS

US EPA Waste Number: Not Regulated

Federal, state and local disposal laws and regulations will determine the proper waste disposal/recycling/reclamation procedure. All waste materials should be reviewed to determine the applicable hazards (testing may be necessary). Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected.

**\*\*NOTE\*\*** Chemical additions, processing or otherwise altering this material may make the waste management information presented above incomplete, inaccurate or otherwise inappropriate.

As local regulations may vary; all waste must be disposed/recycled/reclaimed in accordance with federal, state, and local environmental control regulations.

## SECTION 14: TRANSPORT INFORMATION

**INTERNATIONAL**

UN Number: Not Regulated

**UNITED STATES**

EPA Waste Number: Not Regulated  
DOT Classification: Not Regulated

**CANADA**

PIN Number: Not Regulated  
TDG Class: Not Regulated

**EC**

DGL: Not Determined

## SECTION 15: REGULATORY INFORMATION

**US FEDERAL REGULATIONS**

TSCA: IN TSCA

**SARA 311 AND 312 HAZARD CATEGORIES**

IMMEDIATE (Acute) Health Hazard: YES  
DELAYED (Chronic) Health Hazard: NO  
FIRE Hazard: YES  
REACTIVITY Hazard: NO  
Sudden Release of PRESSURE: NO

**SARA SECTION 313 NOTIFICATION**

This product does not contain toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

**OZONE DEPLETING SUBSTANCES (ODS)**

This product neither contains nor is manufactured with an ozone depleting substance subject to the labelling requirements of the Clean Air Act Amendments 1990 and 40 CFR Part 82.

**VOLATILE ORGANIC COMPOUNDS (VOC)**

0 %

**US STATE REGULATIONS**

VOLATILE ORGANIC COMPOUND (CARB): Not Determined

**CANADIAN REGULATIONS**

DSL/NDSL: DSL

WHMIS Classification: Class C  
Class D Division 2 Subdivision B

**EUROPEAN REGULATIONS**

EINECS: Yes

**OTHER REGULATIONS**

MITI (Japan): Yes

AICS (Australia): Yes

**SECTION 16: OTHER INFORMATION**

**REVISIONS**

Revision Number: 1